

Region 6 Compliance Assurance and Enforcement Division

INSPECTION REPORT

Inspection Date(s):	07/31/2023 to 08/02/2023		
Media:	Water		
Regulatory Program(s)	NPDES		
Company Name:	Southwestern Electric Power Company		
Facility Name:	Lieberman Power Plant		
Facility Physical Location:	11730 LA Hwy 538, Mooringsport, LA 71060 (32.70700, -93.95902)		
(city, state, zip code)	Mesquite		
Mailing address:	13520 S, Stern Dr		
(city, state, zip code)	Mooringsport		
County/Parish:	Caddo Parish		
Facility Contact:	Mr. Jason R Johnson	Office Manager	
	870.826.9336 jrjohnson1@aep.com		
FRS Number:	110002045867		
Identification/Permit Number:	LA0002917		
Media Number:	N/A		
NAICS:	221112		
SIC:	4911		
Personnel participating in inspection:			
Jack Arias	EPA Region-6 ECD-WA	Inspector	214-665-8164
Jason R. Johnson	Lieberman Power Plant	Plant Environmental Coordinator	870-826-9336
Kelly G. Spencer	Lieberman Power Plant	Regional Environmental & IH Manager	903-930-1985
Brian Santone	Lieberman Power Plant	Maintenance Supervisor	318-489-3410
EPA Lead Inspector Signature/Date	 Digitally signed by JACK ARIAS Date: 2023.10.25 11:14:38 -05'00'		06/07/2022
	{Jack Arias}		Date
Supervisor Signature/Date	 Digitally signed by ESTEBAN HERRERA Date: 2023.10.25 18:01:13 -05'00'		
	{Esteban Herrera}		Date

Section I – INTRODUCTION

PURPOSE OF THE INSPECTION

EPA Region 6 inspectors, Jack Arias arrived at Lieberman Power Plant at 12:00 PM on July 31, 2023, for an announced inspection. I met with the Plant Environmental Coordinator, Jason R. Johnson at the opening conference. I presented my credentials to Mr. Johnson and informed him that this was an EPA 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 facility's site procedures, effluent limitations and monitoring requirements, 316b cooling water intake structures and discharge processes, equipment, and pipes maintenance, 316b biomonitoring requirements, pollution prevention plan, management plan, and record keeping requirements of their permit. Following the opening conference, Mr. Johnson, Mr. Spencer, Mr. Santone accompanied me for the entirety of the inspection and gave me a tour of the site in a company vehicle. The Closing Conference was held with all Lieberman representatives where I informed them of the results of the inspection and Areas of Concern.

FACILITY DESCRIPTION

Lieberman Power Plant is located at 11730 Louisiana Highway 538 in Mooringsport, Caddo Lake in Caddo Parish. The power plant is a 247-megawatt, peak-loading, gas-fired facility that uses Caddo Lake's water for its intake, cooling, and industrial processes. The water passes through intake units (1, 2, 3, and 4 units), through traveling channels and screens (3/8-inch square steel mesh each) being pumped by circulating water pumps rated at 17,500 gallons per minute (GPM) each. With the service-water pumps, units 1 and 2 have a combined total design withdrawal capacity (flow) of 73,000 GPM. Unit 3 has two 29,100-gpm circulating pumps and two 3,000-gpm service water pumps. Unit 4 also has two 29,100-gpm circulating pumps, a 2,300-gpm service water pump, and a 1,000-gpm fire water pump. Units 1 and 2 have a low utilization capacity; therefore, the circulating water pumps are infrequently used. Units 3 and 4 provide most of the electric-generation capacity for the facility but operate at less than design flow over the course of a year. As the water passes the traveling screens, debris, fish, and other organism are removed, and after bleach (sodium hypochlorite) is added. Some of this water is pumped via service pumps and becomes service water. Service water enters a clarifier and then to pods used to make demineralized water, which is stored in tanks. The demineralized water is used as makeup water for the hot well and utilized in the boiler, as well as in some small equipment cooling processes. The service water is discharged in the ecology pit, Outfall 101 before going to the seal well and eventually Outfall 001. Most of the circulating pump water is used as once through cooling for the boiler. The water is then directed to the discharge at Outfall 001 (See Photo Nos. 1 – 31 in Appendix 1).

Section II - OBSERVATIONS**Outfall 101:**

I observed that the specific limitations, standards, and discharge of wastewater from unit #3 Boiler blowdown, unit #2 boiler blowdown, and unit #2 hydrogen cooler were not established properly. According to the permit effluent limitations and monitoring requirements RLP 3 Internal Outfall 101, the outfall 101 will monitored potential contamination and low volume of wastewater from non-contact cooling water from boiler blowdowns, floor drains, and demineralizer regeneration wastewater before is discharge to outfall 001. According to the observations and facility's water flow diagram, Outfall 101 is not monitoring potential contamination and low volume of wastewater from unit #3 Boiler blowdown, unit #2 boiler blowdown, and unit #2 hydrogen cooler (See Photo No. 1 in Appendix 2). Wastewater from these units is discharged directly to Seal Well (wastewater storage system) and subsequently to outfall 001. These unit's wastewater contains suspended solids (TSS) and metals that are removed from water during blowdown and cooler processes. These potential suspended solids and metals are released to the Seal Well and consequently to outfall 001. Discharges of wastewater from these units could modify and impact the analysis and sampling results from biomonitoring activities and chemical specific limit from outfall 001 (See Photo Nos. 23 – 29 in Appendix 1).

Also, according to the facility unit #2 boiler blowdown and unit #2 hydrogen cooler wastewater are not activate any longer. Nevertheless, the current permit and diagrams did not show these changes or updates. Also, I identified a potential monitoring point for Unit #3 Boiler blowdown that could be activated and incorporate in the permit to help monitoring potential contamination and low volume of wastewater from non-contact cooling water from boiler blowdowns before is discharge to outfall 001. This point is identified on the facility water flow diagram (See Photo No. 22 in Appendix 1).

Facility needs to provide detail information about the inactivity of unit #2 boiler blowdown and unit #2 hydrogen cooler processes. Also, facility needs to develop a plan that will monitor potential contamination and low volume of wastewater from non-contact cooling water from boiler blowdowns and cooler process before discharge to outfall 001. This information must be updated in the permit.

Outfall 001:

I observed that the sampling location for outfall 001 was not established properly in the permit. The sampling location is not representative. This sampling location should be where there is an effluent discharge where no receiving water is available and prior to mixing with other waters such as Cado Lake. According to the effluent limitations and monitoring requirements RLP 2 Outfall 001 on the permit, cooling wastewater should be monitored and determined low volume wastewater from the internal outfall 101 before discharge to outfall 001 (See Photo No. 1 in Appendix 2). Therefore, the wastewater samples should be taken from an effluent discharge location where no receiving water is available and prior to mixing with other waters such as Cado Lake. The wastewater is mixing with Caddo lake waters and potentially the sampling location is not representative. Also, unit #3 Boiler blowdown, unit #2 boiler blowdown, and unit #2 hydrogen cooler wastewater are not monitored or analyzed prior to outfall 001. These unit's wastewater could alter and impact the analysis and sampling results from the biomonitoring activities and chemical specific limit from outfall 001 (See Photo Nos. 29 – 31 in Appendix 1).

Facility needs to provide detail information about the sampling methodology at outfall 101 and outfall 001. Also, facility needs to develop a plan (for unit #3 Boiler blowdown, unit #2 boiler blowdown, and unit #2 hydrogen cooler) that will identify a new sampling location for outfall 001 and monitor potential contamination and low volume of wastewater from non-contact cooling water from boiler blowdowns and cooler process before discharge to outfall 001 and prior to mixing with other waters such as Cado Lake. Also, this information must be updated in the permit.

Bleach Leak (Sodium Hypochlorite):

Facility apply Sodium hypochlorite (bleach) to control and inhibit marine growth that could foul the condenser, piping, heat exchangers, and other equipment where the circulating water flow. I inspected the enclosing chemical process and found a leak on the pipe that formed part sodium hypochlorite's control system. I observed corrosion formation on pipe and areas that got in contact with sodium hypochlorite. This acid could produce irritations and burns on people. Also, it could cause carcinogenic effects on water. (See Photo Nos. 8 – 10 in Appendix 1).

Facility needs to fix the leak and later provide information and pictures that demonstrate the corrective action.

Ecology Pit:

The facility uses the ecology pit as monitor location where wastewater is discharged and monitored by outfall 101 that checked pH, settling of solids, and oil water separation. This is completed before wastewater goes to the seal well and eventually to outfall 001. I observed some vegetation and algae formation on the wastewater surface on the ecology pit. Also, I observed sediments accumulation inside the ecology's pit structure. These formations and sediment accumulation could impact the integrity of the system and the monitoring activities of pH, settling and accumulation of solids, oil/water separation, and removal of sediments (See Photo Nos. 23 – 24 in Appendix 1).

Also, I found that the outfall 101 sampling location on the facility's flow wastewater diagram is incorrect. (See Photo No. 1 in Appendix 2).

Facility needs to provide specific information about the annual integrity inspection and maintenance of the ecology pit. Also, facility needs to correct the algae/vegetation formations, flow wastewater diagram and update information in the permit.

Service-Water Pumps, Units 1 and 2:

Service-Water Pumps withdraw water from caddo lake. Water is utilized for facility processes and production of electricity. Units 1 and 2 have a low utilization capacity and Units 3 and 4 have more use and consequently provide more water, produce more wastewater, and most of the electric-generation capacity for the facility processes. According to the facility Units 1 and 2 are not active, but I could not find an explanation or updates on the permit about the inactivity of unit 1 and 2 and the potential impacts on facility's procedures (See Photo No. 1 in Appendix 2). Facility needs to update information about inactivity of unit 1 and 2 in the permit and provide an explaining about potential impacts on the water intake process, pump rate activities, condensing cooling activity, settling/separation of solids, and discharge rate via outfall 001 due to inactivity of these units (See Photo Nos. 3 – 7 in Appendix 1).

Composite sampling:

The objective of the composite samples is to identify potential causes of toxicity, help to reduce toxicity, help to evaluate the effectiveness of toxicity control options, and confirm that toxicity has been reduced or eliminated. This sampling process is part of the biomonitoring requirements that is intended to define a framework for complying with permit and waste discharge requirements. To better understand the facility biomonitoring activities and improve the toxicity's reporting process, the facility needs to provide a written detail information about the methodology and procedures of composite sampling for biomonitoring activities at out falls 101 and 001. Also, the facility needs to provide a sampling diagram and a detail methodology for sampling procedures at the ecology pit outfall 101 and discharge area outfall 001.

Method Detection Limit (MDL) 40 CFR 136:

To better understand the MDL established by the facility and some of the toxicity results on the TRE results, facility needs to provide a copy of the MDL report that indicate QA/QC documentation, analytical results (non-conventional, metals, volatile compounds, acids, based/neutral compounds, and pesticides), and calculations of the MDL.

316B Requirements:

- ✚ Facility needs to demonstrate that they fulfill requirements and compliance with the effluents limitations and monitoring requirements specified for discharges in accordance with clean water act 316b. Facility needs to provide a copy of the first annual 2020 report, and subsequently other reports (2021, 2022, and 2023) one year from the date of previous first annual report (2020).
- ✚ According to the permit in 316b, facility needs to provide information about any change at least 2 years and 6 months prior to the permit expiration. Facility showed inactivity on units, potential changes/updates in processes, modifications on flow wastewater diagram and sampling points, and the necessity to establish a new sampling location to monitor and comply with CWA 316b requirements. The information must specify/identify each element of the 40 CFR 122.21 (r) application studies and the basis for the determination.

Stormwater Discharges:

Stormwater discharges were covered under multisector general permit (LAR05N078) until September 6, 2016. After 2016, the facility should incorporate stormwater discharges into this permit. Also, I observed that Outfall 002 is not active, but the information and diagram are not update in the FRP, SPCC, and storm water plan in the permit. So, facility needs to update and provide a detail information and diagrams of inactivity and the stormwater discharges into this permit according to other conditions section J of the permit (See Photo No. 3 in Appendix 2).

Sanitary Wastewater Treatment System:

A spray irrigation system was installed at the facility to land apply treated sanitary wastewater. The permit does not authorize the discharge or treated sanitary wastewater. At the time of the inspection sanitary system was covered with grass and debris, and a spray sprinkle was not working properly. Maintenance could avoid potential discharges of untreated sanitary wastewater into caddo Lake (See Photo No. 2 in

Appendix 2). Facility needs to provide a copy of the of the inspection report from JDW construction INC that agrees to inspect the facility sanitary system two times a year. We need a copy of inspection report for February 2023 and August 2023. Also, facility needs to provide a picture the corrective action to fix the spray sprinkle (See Photo Nos. 32 – 34 in Appendix 1).

Clean water Act 316b cooling Water Intake Structures (CWIS):

- ✚ Facility needs to demonstrate that they fulfill CWIS requirements and compliance with the effluents limitations and monitoring requirements. According to 40 CFR 125.97 facility needs to provide a summary report of results (part of the annual report) for 2020, 2021, 2022, and 2023. This report should include facility's flow monitoring information, visual inspections, remote monitoring activities, and records of capacity utilization. Also, it should include modifications of operations and units that could impact the cooling waters withdraws, operations of the water intake structure, and certification of technologies maintained and operated according to the permit.
- ✚ Also, facility needs to incorporate information that illustrate the procedures to minimized impingement mortality and entrainment of aquatic organism according to 40 CFR 125.94 BAT standards. This information is part of the 316b requirements and information that must be provided 2 years and 6 months prior to the permit expiration.

316b Toxicity Reduction Evaluation (TRE):

- ✚ Facility demonstrated sublethal toxicity effects on Ceriodaphnia dubia low reproduction in 2021, 2022, and 2023. Also, facility detected toxicity of metals such as copper and zinc in outfall 001 in 2022 and june 2023. Facility needs to provide a full report of the corrective actions and TRE plan that described the scientific approach and methodologies to be using in performing the TRE test from 2021, 2022, and 2023.
- ✚ Also, facility needs to describe and explain the dilution of water methodology used for TRE test (TRE conducted on effluents discharges to receiving waters or discharges where not receiving waters are available). Section 3c of the permit.
- ✚ Also, according to section 6d of the permit, facility needs to provide a final report of TRE results after 28 months of confirming sub lethality in the retest which will clarify information pertaining to the specific control mechanism that may comply with the biomonitoring requirements and chemical specific limits.

Proper Operation and Maintenance:

The permittee shall at all the times operate and maintain all facilities and systems of treatment and control to achieve compliance. This includes adequate laboratory controls and appropriate quality assurance procedures. I observed that laboratory controls (methodologies and location information) and sampling controls (biomonitoring controls outfall 101 and 001) could improve. Also, I observed that the intake and discharge controls need improvement and update information, a minor oil spill near the condenser colling operation pipes, and a bleach leak near the ecology pit. According to the permit section B6, solids, or other pollutants should be removed to prevent any pollutant from entering water of the states and accordance with CWA regulations (See Photo Nos. 17 – 19 in Appendix 1).

Section III – AREAS OF CONCERN

The following Areas of Concern were discussed with Jason R. Johnson Kelly G. Spencer Brian Santone during the closing conference: In accordance with the requirements prescribed in items S.1., 2 and 3.c.i-vi beginning on page 10 of 26 of the other conditions section of the referenced permit.

1. Facility needs to provide detail information about the inactivity of unit #2 boiler blowdown and unit #2 hydrogen cooler processes (requirement prescribed in Section I, 316(b)requirements, on page 23 and 24; section D, Facility Changes, a and b on page 54 and 55; and section S, 316b Cooling Intake Structures part 3.c.v. on page 27 of 64 of the other conditions section).
2. Facility needs to develop a plan that will monitor potential contamination and low volume of wastewater from non-contact cooling water from boiler blowdowns and cooler process before discharge to outfall 001 (requirement prescribed in item RLP2: outfall 001 N-3 on page 12 of 64)
3. Facility needs to provide information about a potential monitoring point for Unit #3 Boiler blowdown that could be activated and incorporate in the permit to help monitoring potential contamination and low volume of wastewater from non-contact cooling water from boiler blowdowns before is discharge to outfall 001 (requirement prescribed in item RLP3: outfall 101 N-2 and N-3 on page 12 and 13 of 64).
4. Facility needs to provide detail information about the sampling methodology at outfall 101 and outfall 001(requirement prescribed in item RLP3: outfall 101 N-2 on page 13, and section H on page 23 of 64).
5. Facility needs to develop a plan (for unit #3 Boiler blowdown, unit #2 boiler blowdown, and unit #2 hydrogen cooler) that will identify a new sampling location for outfall 001 and monitor potential contamination and low volume of wastewater from non-contact cooling water from boiler blowdowns and cooler process before discharge to outfall 001 and prior to mixing with other waters such as Cado Lake (requirement prescribed in item RLP3: outfall 101 N-2 and N-3 on page 12 and 13, and section H on page 23 of 64).
6. Facility needs to fix the oil leak and later provide information and pictures that demonstrate the corrective action (requirement prescribed in section B, proper operation and maintenance, part 6 on page 51 of 64).
7. Facility needs to provide specific information about the annual integrity inspection and maintenance of the ecology pit (requirement prescribed in section H on page 23 and section B, proper operation and maintenance, part 3 and 5 on page 49 and 50 of 64).
8. Facility needs to correct the algae/vegetation formations, flow wastewater diagram and update information in the permit (requirement prescribed in section B, proper operation and maintenance, part 3 and 5 on page 49 and 50 of 64)
9. Facility needs to update information about inactivity of unit 1 and 2 in the permit and provide an explaining about potential impacts on the water intake process, pump rate activities, condensing cooling activity, settling/separation of solids, and discharge rate via outfall 001 due to inactivity of these units(requirement prescribed in Section I, 316(b)requirements, on page 23 and 24, and section D, Facility Changes, a and b on page 54 and 55 of 64).
10. Facility needs to provide a written detail information about the methodology and procedures of composite sampling for biomonitoring activities at out falls 101 and 001 (requirement prescribed in Section T, toxicity testing, part 3.c and 3d on page 33 and 34 of 64).
11. Facility needs to provide a detail methodology for sampling procedures at the ecology pit outfall 101 and discharge area outfall 001(requirement prescribed in Section T, toxicity testing, part 3.c and 3d on page 33 and 34 of 64).

12. Facility needs to provide a copy of the MDL report that indicate QA/QC documentation, analytical results (non-conventional, metals, volatile compounds, acids, based/neutral compounds, and pesticides), and calculations of the MDL (requirement prescribed in Section H, Minimum Quantification Level on page 22 of 64).
13. Facility needs to provide a copy of the first annual 2020 report, and subsequently other reports (2021, 2022, and 2023) one year from the date of previous first annual report (2020). These reports should include information about the clean water act 316b cooling water intake structure requirements that ensure that any technology is maintained and operated to comply with 40 CFR 125.94 (e) and 125.97 (d) (requirement prescribed in Section I, 316b requirements on page 23 and section S, 316b Cooling Intake Structures part 2 and 3 on page 26 and 27 of 64).
14. Facility needs to improve the establishment of seasonal deployment of barrier nets at the intake points conditions 40 CFR part 125 subpart J 125.24.c8 and 40 CFR part 401.14) (requirement prescribed in Section S, 316b Cooling Water Intake Structures part 4 on page 28 of 64).
15. Facility showed inactivity on units, potential changes/updates in processes, modifications on flow wastewater diagram and sampling points, and the necessity to establish a new sampling location to monitor and comply with CWA 316b requirements (requirement prescribed in Section I, 316(b)requirements, on page 23 and 24; section D, Facility Changes, a and b on page 54 and 55; and section S, 316b Cooling Intake Structures part 3 and part 4 on page 27 and 28 of 64 of the other conditions section).
16. Facility had substantial modifications to the operation of units (inactive units) that impact the cooling water withdrawals or operation of the water intake structure and discharge, so facility must submit revisions to the information required at 40 CFR 122.21(r) in your next permit application (requirement prescribed in Section S, 316b Cooling Intake Structures part 3.c.v. on page 27 of 64).
17. Facility needs to update and provide a detail information and diagrams of inactivity and the stormwater discharges into this permit according to other conditions section J of the permit (requirement prescribed in Section J, Storm Water Discharges on page 24 of 64).
18. Facility needs to provide a copy of the of the inspection report from JDW construction INC that agrees to inspect the facility sanitary system two times a year. We need a copy of inspection report for February 2023 and August 2023. Also, Facility needs to provide a picture the corrective action to fix the spray sprinkle system (requirement prescribed in Section Q, Sanitary Wastewater on page 26 of 64).
19. Facility needs to provide a summary report of results (part of the annual report) for 2020, 2021, 2022, and 2023. This report should include facility's flow monitoring information, visual inspections, remote monitoring activities, and records of capacity utilization. Also, it should include modifications of operations and units that could impact the cooling waters withdraws, operations of the water intake structure, and certification of technologies maintained and operated according to the permit (requirement prescribed in Section D, Facility Changes, a and b on page 54 and 55; section I, 316(b)requirements, on page 23 and 24; and section S, 316b Cooling Intake Structures part 3 and part 4 on page 27 and 28 of 64).
20. Facility needs to incorporate information that illustrate the procedures to minimized impingement mortality and entrainment of aquatic organism according to 40 CFR 125.94 BTA determination (requirement prescribed in Section S, 316b Cooling Intake Structures part 3 on page 27 of 64).
21. Facility needs to provide a full report of the corrective actions and TRE plan that described the scientific approach and methodologies to be using in performing the TRE test from 2021, 2022, and 2023 (requirement prescribed in Section T, Whole Effluent Toxicity, part 6.a TRE on page 39 of 64).

22. Facility needs to describe and explain the dilution of water methodology used for TRE test (requirement prescribed in Section T, Whole Effluent Toxicity, part 2 on page 31 of 64).
23. Facility needs to provide a final report of TRE results after 28 months of confirming sub lethality in the retest which will clarify information pertaining to the specific control mechanism that may comply with the biomonitoring requirements and chemical specific limits (requirement prescribed in Section T, Whole Effluent Toxicity, part 6d on page 41 of 64).
24. Facility failed to provide BTA report (2 years and 6 months prior to permit expiration) that confirm that operations have not substantially change (inactive intake and boiler units) since the previous 2020 permit application (40 CFR 122.21r) (requirement prescribed in Section S, 316b Cooling Intake Structures part 5 on page 29 of 64).

Section IV – FOLLOW UP

-  EPA will provide a copy of the inspection report and held different meetings to discuss inspection report results, observations, and potential corrective actions.
-  EPA will submit a VOC to acquire proper information and correct concerns at the facility.
-  Facility will provide and discus information connected with areas of concern.

Section V – LIST OF APPENDICES

Appendix 1 – Photo Log – 34 photos taken 06/31/2023 to 07/02/2023.

Appendix 2 – 3 diagrams 06/31/2023 to 07/02/2023.

Appendix 1

Photograph Log and

Significant Photo Locations



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

Photograph Log

Photo No. 1

11730 LA Hwy 538, Mooringsport, LA 71060 (32.70700, -93.95902)		
Mooringsport	County: Caddo Parish	State: Louisiana



Photograph File Name: R0010303.JPG
Date of Photograph: 07/31/2023
Latitude and Longitud: 32.704536, -93.958914
Orientation: W
Map Datum: WGS-84
Time of Photo: 05:40 PM
Photographer: Jack Arias
Description: This image shows part of the name of facility.



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

Photograph Log

Photo No. 2

11730 LA Hwy 538, Mooringsport, LA 71060 (32.70700, -93.95902)		
Mooringsport	County: Caddo Parish	State: Louisiana



Photograph File Name: R0010443.JPG
Date of Photograph: 08/02/2023
Latitude and Longitud: 32.704568, -93.960043
Orientation: W
Map Datum: WGS-84
Time of Photo: 12:27 PM
Photographer: Jack Arias
Description: This image shows the entrance and front part of the facility.



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

Photograph Log

Photo No. 3

11730 LA Hwy 538, Mooringsport, LA 71060 (32.70700, -93.95902)		
Mooringsport	County: Caddo Parish	State: Louisiana



Photograph File Name: Intakecompartment.JPG

Date of Photograph: 08/01/2023

Latitude and Longitude: 32.704145, -93.961076

Orientation: SW

Map Datum: WGS-84

Time of Photo: 10:10 AM

Photographer: Jack Arias

Description: This image shows units # 3 and 4 that uses Caddo Lake's water for its intake, cooling, and industrial processes. The water passes through intake units (yellow arrow) through traveling channels and screens (3/8-inch square steel mesh each) being pumped by circulating water pumps (red arrow).



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

Photograph Log

Photo No. 4

11730 LA Hwy 538, Mooringsport, LA 71060 (32.70700, -93.95902)		
Mooringsport	County: Caddo Parish	State: Louisiana



Photograph File Name: IntakePump.JPG
Date of Photograph: 08/01/2023
Latitude and Longitude: 32.704228, -93.961041
Orientation: S
Map Datum: WGS-84
Time of Photo: 10:25 AM
Photographer: Jack Arias
Description: This image shows screens (3/8-inch square steel mesh each) being pumped by circulating water pump.

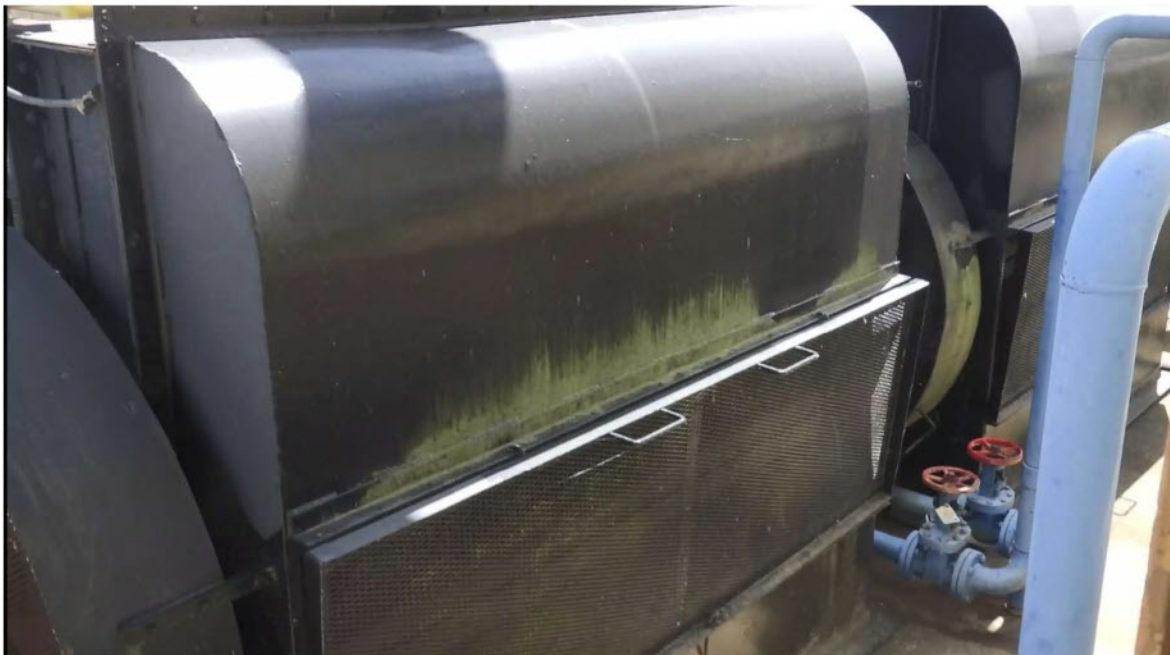


UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

Photograph Log

Photo No. 5

11730 LA Hwy 538, Mooringsport, LA 71060 (32.70700, -93.95902)		
Mooringsport	County: Caddo Parish	State: Louisiana



Photograph File Name: IntakePumpBack.JPG
Date of Photograph: 08/01/2023
Latitude and Longitud: 32.704274, -93.960812
Orientation: S
Map Datum: WGS-84
Time of Photo: 10:40 AM
Photographer: Jack Arias
Description: This image shows the back of the circulating water pump.



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

Photograph Log

Photo No. 6

11730 LA Hwy 538, Mooringsport, LA 71060 (32.70700, -93.95902)		
Mooringsport	County: Caddo Parish	State: Louisiana



Photograph File Name: InsPumpIntake.JPG
Date of Photograph: 08/01/2023
Latitude and Longitude: 32.704209, -93.961094
Orientation: S
Map Datum: WGS-84
Time of Photo: 10:23 AM
Photographer: Jack Arias
Description: This image shows the 3/8-inch square steel mesh screens (3/8-inch square steel mesh each) inside the circulating water pump.



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

Photograph Log

Photo No. 7

11730 LA Hwy 538, Mooringsport, LA 71060 (32.70700, -93.95902)		
Mooringsport	County: Caddo Parish	State: Louisiana



Photograph File Name: Sepintake.JPG
Date of Photograph: 08/01/2023
Latitude and Longitude: 32.704187, -93.960925
Orientation: SE
Map Datum: WGS-84
Time of Photo: 10:34 AM
Photographer: Jack Arias
Description: This image shows the drain system that separates fish from intake and returns fish to the lake.



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

Photograph Log

Photo No. 8

11730 LA Hwy 538, Mooringsport, LA 71060 (32.70700, -93.95902)		
Mooringsport	County: Caddo Parish	State: Louisiana



Photograph File Name: R0010335.JPG
Date of Photograph: 08/01/2023
Latitude and Longitude: 32.704233, -93.961383
Orientation: SE
Map Datum: WGS-84
Time of Photo: 3:08 PM
Photographer: Jack Arias
Description:

This image shows the sodium hypochlorite tank that form part of the bleaching system to control and inhibit marine growth that could foul the condenser, piping, heat exchangers, and other equipment.



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

Photograph Log

Photo No. 9

11730 LA Hwy 538, Mooringsport, LA 71060 (32.70700, -93.95902)		
Mooringsport	County: Caddo Parish	State: Louisiana



Photograph File Name: R0010337.JPG
Date of Photograph: 08/01/2023
Latitude and Longitude: 32.704233, -93.961383
Orientation: SE
Map Datum: WGS-84
Time of Photo: 3:08 PM
Photographer: Jack Arias
Description: This image shows the application process of sodium hypochlorite control area.



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

Photograph Log

Photo No. 10

11730 LA Hwy 538, Mooringsport, LA 71060 (32.70700, -93.95902)		
Mooringsport	County: Caddo Parish	State: Louisiana



Photograph File Name: R0010338.JPG
Date of Photograph: 08/01/2023
Latitude and Longitud: 32.704233, -93.961383
Orientation: SE
Map Datum: WGS-84
Time of Photo: 3:10 PM
Photographer: Jack Arias
Description: This image shows a leak on pipes and areas that formed part of the application control area of sodium hypochlorite.



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

Photograph Log

Photo No. 11

11730 LA Hwy 538, Mooringsport, LA 71060 (32.70700, -93.95902)		
Mooringsport	County: Caddo Parish	State: Louisiana



Photograph File Name: R0010366.JPG
Date of Photograph: 08/01/2023
Latitude and Longitud: 32.704335, -93.961077
Orientation: SW
Map Datum: WGS-84
Time of Photo: 3:52 PM
Photographer: Jack Arias
Description: This image shows part of the condenser colling operation pipe system at the facility.



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

Photograph Log

Photo No. 12

11730 LA Hwy 538, Mooringsport, LA 71060 (32.70700, -93.95902)		
Mooringsport	County: Caddo Parish	State: Louisiana



Photograph File Name: R0010371.JPG
Date of Photograph: 08/01/2023
Latitude and Longitud: 32.704376, -93.960523
Orientation: SW
Map Datum: WGS-84
Time of Photo: 4:00 PM
Photographer: Jack Arias
Description: This image shows an inclose system that is part of the condenser cooling system at the facility.



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

Photograph Log

Photo No. 13

11730 LA Hwy 538, Mooringsport, LA 71060 (32.70700, -93.95902)		
Mooringsport	County: Caddo Parish	State: Louisiana



Photograph File Name: R0010425.JPG

Date of Photograph: 08/02/2023

Latitude and Longitude: 32.704967, -93.961043

Orientation: N

Map Datum: WGS-84

Time of Photo: 10:30 AM

Photographer: Jack Arias

Description: This image shows the boiler system at the facility. Demineralized water is utilized in the boiler system.



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

Photograph Log

Photo No. 14

11730 LA Hwy 538, Mooringsport, LA 71060 (32.70700, -93.95902)		
Mooringsport	County: Caddo Parish	State: Louisiana



Photograph File Name: R0010378.JPG
Date of Photograph: 08/01/2023
Latitude and Longitud: 32.704412, -93.961136
Orientation: S
Map Datum: WGS-84
Time of Photo: 4:21 PM
Photographer: Jack Arias
Description: This image shows the main control area for procedures at the facility.



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

Photograph Log

Photo No. 15

11730 LA Hwy 538, Mooringsport, LA 71060 (32.70700, -93.95902)		
Mooringsport	County: Caddo Parish	State: Louisiana



Photograph File Name: R0010380.JPG
Date of Photograph: 08/01/2023
Latitude and Longitud: 32.704339, -93.960646
Orientation: SE
Map Datum: WGS-84
Time of Photo: 4:24 PM
Photographer: Jack Arias
Description: This image shows the discharge and backflowing system of treated wastewater at the facility.

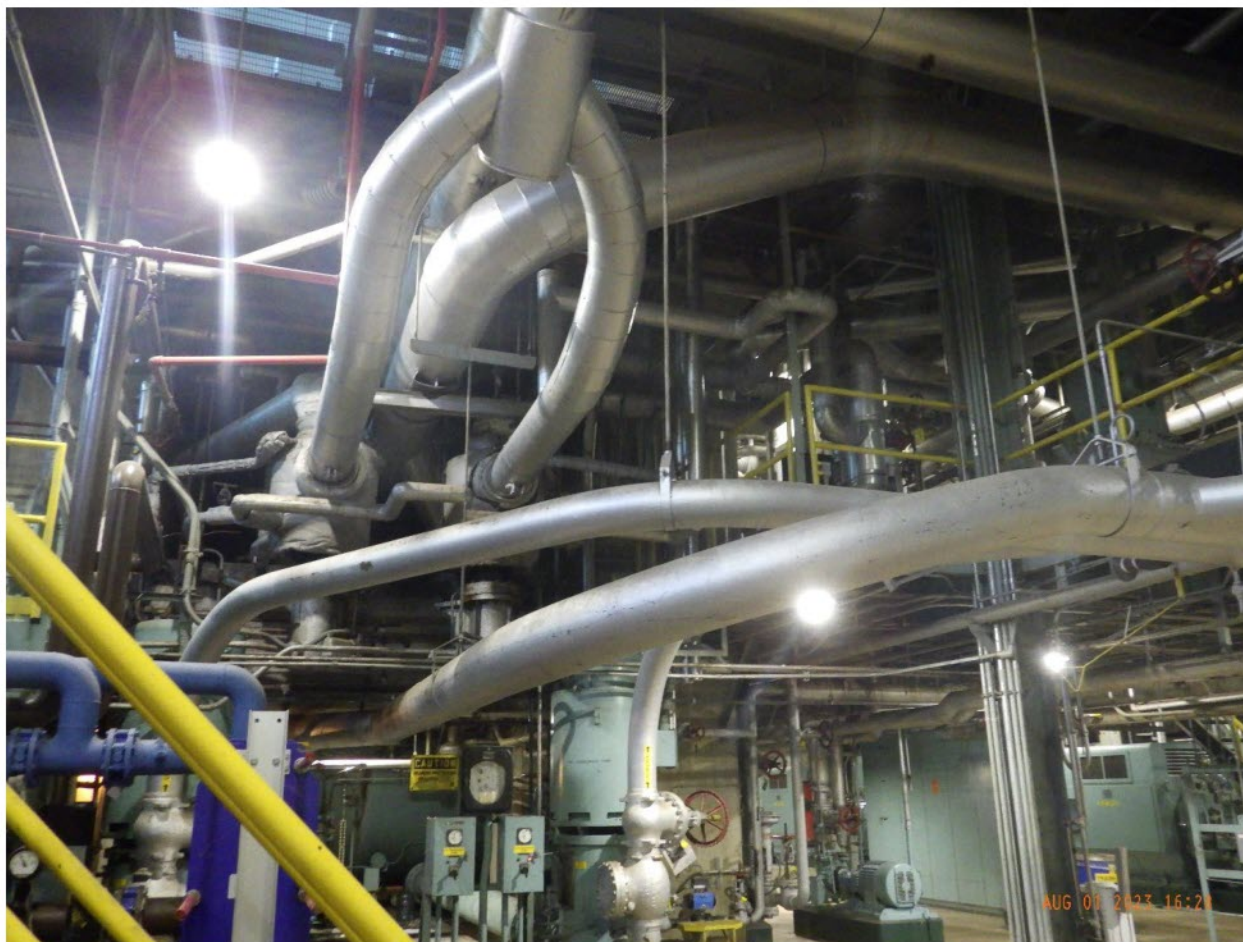


UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

Photograph Log

Photo No. 16

11730 LA Hwy 538, Mooringsport, LA 71060 (32.70700, -93.95902)		
Mooringsport	County: Caddo Parish	State: Louisiana



Photograph File Name: R0010384.JPG
Date of Photograph: 08/012023
Latitude and Longitud: 32.704404, -93.960833
Orientation: S
Map Datum: WGS-84
Time of Photo: 4:28 PM
Photographer: Jack Arias
Description:

This image shows part of the condenser colling operation pipes, discharge pipes, and backflowing system of treated wastewater at the facility.



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

Photograph Log

Photo No. 17

11730 LA Hwy 538, Mooringsport, LA 71060 (32.70700, -93.95902)		
Mooringsport	County: Caddo Parish	State: Louisiana



Photograph File Name: R0010390.JPG
Date of Photograph: 08/01/2023
Latitude and Longitude: 32.704363, -93.960933
Orientation: S
Map Datum: WGS-84
Time of Photo: 4:29 PM
Photographer: Jack Arias
Description: This image shows a minor oil spill near the condenser cooling operation pipes.



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

Photograph Log

Photo No. 18

11730 LA Hwy 538, Mooringsport, LA 71060 (32.70700, -93.95902)		
Mooringsport	County: Caddo Parish	State: Louisiana



Photograph File Name: R0010397.JPG

Date of Photograph: 08/01/2023

Latitude and Longitude: 32.704431, -93.960168

Orientation: S

Map Datum: WGS-84

Time of Photo: 4:41 PM

Photographer: Jack Arias

Description: This image shows the clarifier system that remove solid particles or suspended solids from water for clarification and thickening.



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

Photograph Log

Photo No. 19

11730 LA Hwy 538, Mooringsport, LA 71060 (32.70700, -93.95902)		
Mooringsport	County: Caddo Parish	State: Louisiana



Photograph File Name: R0010400.JPG
Date of Photograph: 08/01/2023
Latitude and Longitud: 32.704431, -93.960168
Orientation: S
Map Datum: WGS-84
Time of Photo: 4:42 PM
Photographer: Jack Arias
Description:

This image shows the filtration system that produced demineralized water that is used as makeup water for the hot well and utilized in the boiler, as well as in some small equipment cooling processes.



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

Photograph Log

Photo No. 20

11730 LA Hwy 538, Mooringsport, LA 71060 (32.70700, -93.95902)		
Mooringsport	County: Caddo Parish	State: Louisiana



Photograph File Name: R0010392.JPG
Date of Photograph: 08/01/2023
Latitude and Longitude: 32.704404, -93.960759
Orientation: S
Map Datum: WGS-84
Time of Photo: 4:31 PM
Photographer: Jack Arias
Description: This image shows the sump area that collect undesirable liquids such as water or chemicals and manage surface runoff water or wastewater.



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

Photograph Log

Photo No. 21

11730 LA Hwy 538, Mooringsport, LA 71060 (32.70700, -93.95902)		
Mooringsport	County: Caddo Parish	State: Louisiana



Photograph File Name: R0010383.JPG

Date of Photograph: 08/01/2023

Latitude and Longitude: 32.704306, -93.961037

Orientation: SE

Map Datum: WGS-84

Time of Photo: 4:26 PM

Photographer: Jack Arias

Description: This image shows the main water pump area that distribute water to all procedures at the facility.

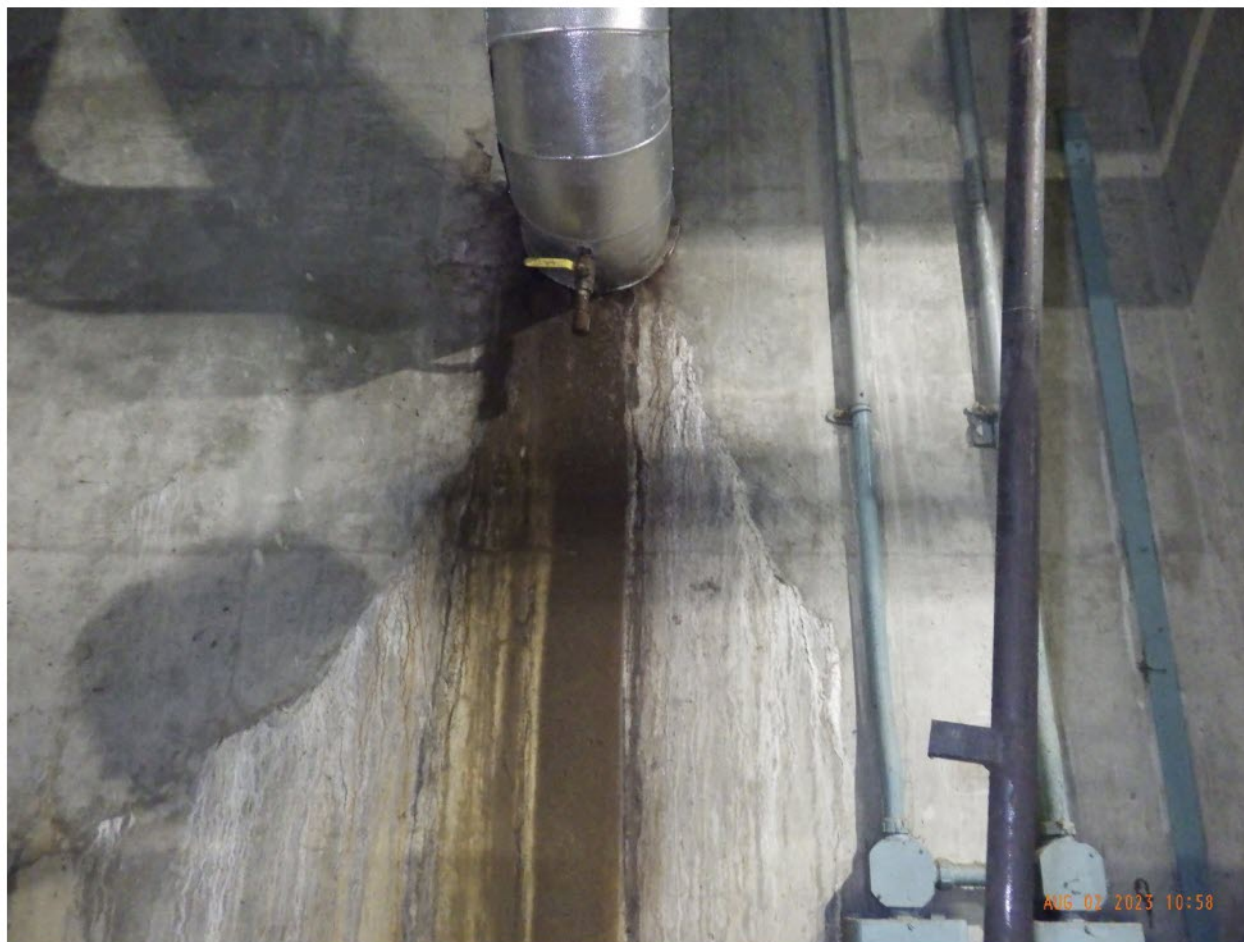


UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

Photograph Log

Photo No. 22

11730 LA Hwy 538, Mooringsport, LA 71060 (32.70700, -93.95902)		
Mooringsport	County: Caddo Parish	State: Louisiana



Photograph File Name: R0010433.JPG
Date of Photograph: 08/02/2023
Latitude and Longitud: 32.704351, -93.960201
Orientation: SW
Map Datum: WGS-84
Time of Photo: 10:58 AM
Photographer: Jack Arias
Description:

This image shows a potential monitoring location for Unit #3 Boiler blowdown that could be activated and incorporate in the permit to help monitoring potential contamination and low volume of wastewater from non-contact cooling water from boiler blowdowns before is discharge to outfall 001.



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

Photograph Log

Photo No. 23

11730 LA Hwy 538, Mooringsport, LA 71060 (32.70700, -93.95902)		
Mooringsport	County: Caddo Parish	State: Louisiana



Photograph File Name: R0010331.JPG
Date of Photograph: 08/01/2023
Latitude and Longitude: 32.704143, -93.961603
Orientation: E
Map Datum: WGS-84
Time of Photo: 3:05 PM
Photographer: Jack Arias
Description: This image shows sediments accumulation, vegetation and algae formation on the wastewater surface on the ecology pit.



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

Photograph Log

Photo No. 24

11730 LA Hwy 538, Mooringsport, LA 71060 (32.70700, -93.95902)		
Mooringsport	County: Caddo Parish	State: Louisiana



Photograph File Name: R0010328.JPG
Date of Photograph: 08/01/2022
Latitude and Longitude: 32.704143, -93.961603
Orientation: E
Map Datum: WGS-84
Time of Photo: 3:04 PM
Photographer: Jack Arias
Description: This image shows sediments accumulation, vegetation, and algae formation on the wastewater surface on the ecology pit.



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

Photograph Log

Photo No. 25

11730 LA Hwy 538, Mooringsport, LA 71060 (32.70700, -93.95902)		
Mooringsport	County: Caddo Parish	State: Louisiana



Photograph File Name: R0010381.JPG
Date of Photograph: 08/01/2023
Latitude and Longitud: 32.704314, -93.961037
Orientation: S
Map Datum: WGS-84
Time of Photo: 4:26 PM
Photographer: Jack Arias
Description: This image shows part of the internal blowdown system and wastewater discharge pipe system.



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

Photograph Log

Photo No. 26

11730 LA Hwy 538, Mooringsport, LA 71060 (32.70700, -93.95902)		
Mooringsport	County: Caddo Parish	State: Louisiana



Photograph File Name: R0010356.JPG
Date of Photograph: 08/01/2023
Latitude and Longitud: 32.704289, -93.960847
Orientation: S
Map Datum: WGS-84
Time of Photo: 3:41 PM
Photographer: Jack Arias
Description:

This image shows the exterior wastewater pipe system that transport blowdown and condenser cooling wastewater to the Seal Well system.



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

Photograph Log

Photo No. 27

11730 LA Hwy 538, Mooringsport, LA 71060 (32.70700, -93.95902)		
Mooringsport	County: Caddo Parish	State: Louisiana



Photograph File Name: R0010363.JPG
Date of Photograph: 08/01/2023
Latitude and Longitude: 32.704203, -93.960621
Orientation: S
Map Datum: WGS-84
Time of Photo: 3:46 PM
Photographer: Jack Arias
Description:

This image shows the exterior wastewater pipe system that transport blowdown and condenser cooling wastewater to the Seal Well system.



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

Photograph Log

Photo No. 28

11730 LA Hwy 538, Mooringsport, LA 71060 (32.70700, -93.95902)		
Mooringsport	County: Caddo Parish	State: Louisiana



Photograph File Name: R0010359.JPG

Date of Photograph: 08/01/2023

Latitude and Longitude: 32.704274, -93.96022

Orientation: S

Map Datum: WGS-84

Time of Photo: 3:46 PM

Photographer: Jack Arias

Description: This image shows the Seal Well System. This an exterior system that receives wastewater from all procedures before discharge to outfall 001.



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

Photograph Log

Photo No. 29

11730 LA Hwy 538, Mooringsport, LA 71060 (32.70700, -93.95902)		
Mooringsport	County: Caddo Parish	State: Louisiana



Photograph File Name: R0010325.JPG
Date of Photograph: 08/01/2023
Latitude and Longitude: 32.7043226, -93.9582014
Orientation: SW
Map Datum: WGS-84
Time of Photo: 2:54 PM
Photographer: Jack Arias
Description: This image shows outfall 001 and sampling location for outfall 001. Receiving water is available and mixing with other water from Cado Lake.



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

Photograph Log

Photo No. 30

11730 LA Hwy 538, Mooringsport, LA 71060 (32.70700, -93.95902)		
Mooringsport	County: Caddo Parish	State: Louisiana



Photograph File Name: R0010324.JPG
Date of Photograph: 08/01/2023
Latitude and Longitude: 32.7043226, -93.9582014
Orientation: SW
Map Datum: WGS-84
Time of Photo: 2:54 PM
Photographer: Jack Arias
Description: This image shows an approximation to outfall 001 and sampling location for outfall 001.



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

Photograph Log

Photo No. 31

11730 LA Hwy 538, Mooringsport, LA 71060 (32.70700, -93.95902)		
Mooringsport	County: Caddo Parish	State: Louisiana



Photograph File Name: R0010320.JPG
Date of Photograph: 08/01/2023
Latitude and Longitud: 32.7043226, -93.9582014
Orientation: SW
Map Datum: WGS-84
Time of Photo: 2:48 PM
Photographer: Jack Arias
Description: This image shows an approximation of sampling location for outfall 001.



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

Photograph Log

Photo No. 32

11730 LA Hwy 538, Mooringsport, LA 71060 (32.70700, -93.95902)		
Mooringsport	County: Caddo Parish	State: Louisiana



Photograph File Name: R0010418.JPG
Date of Photograph: 08/02/2023
Latitude and Longitud: 32.704365, -93.95982
Orientation: SW
Map Datum: WGS-84
Time of Photo: 10:15 AM
Photographer: Jack Arias
Description: This image shows the sanitary wastewater system.



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

Photograph Log

Photo No. 33

11730 LA Hwy 538, Mooringsport, LA 71060 (32.70700, -93.95902)		
Mooringsport	County: Caddo Parish	State: Louisiana



Photograph File Name: R0010406.JPG

Date of Photograph: 08/02/2023

Latitude and Longitude: 32.704365, -93.95982

Orientation: W

Map Datum: WGS-84

Time of Photo: 9:57 AM

Photographer: Jack Arias

Description: This image shows the aerator mounting casting system that is part of the sanitary aeration chamber.



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

Photograph Log

Photo No. 34

11730 LA Hwy 538, Mooringsport, LA 71060 (32.70700, -93.95902)		
Mooringsport	County: Caddo Parish	State: Louisiana



Photograph File Name: R0010403.JPG
Date of Photograph: 08/02/2023
Latitude and Longitud: 32.704365, -93.95982
Orientation: W
Map Datum: WGS-84
Time of Photo: 9:55 PM
Photographer: Jack Arias
Description: This image shows the chlorination system. This is part of the sanitary system.

Appendix 2

Photo No.1

Storm Water Site Plan

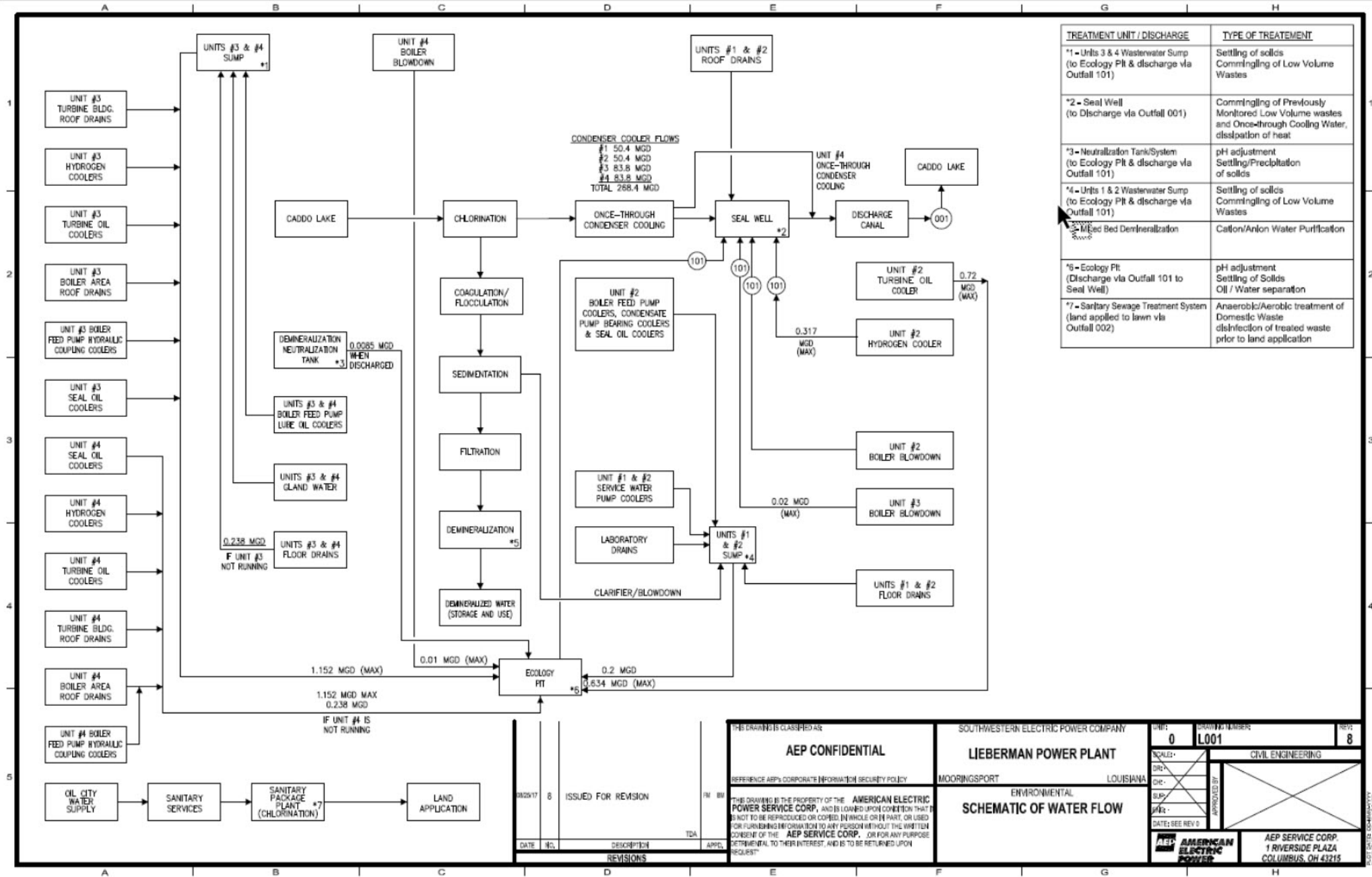


Photo No. 2 Sanitary Wastewater Treatment System

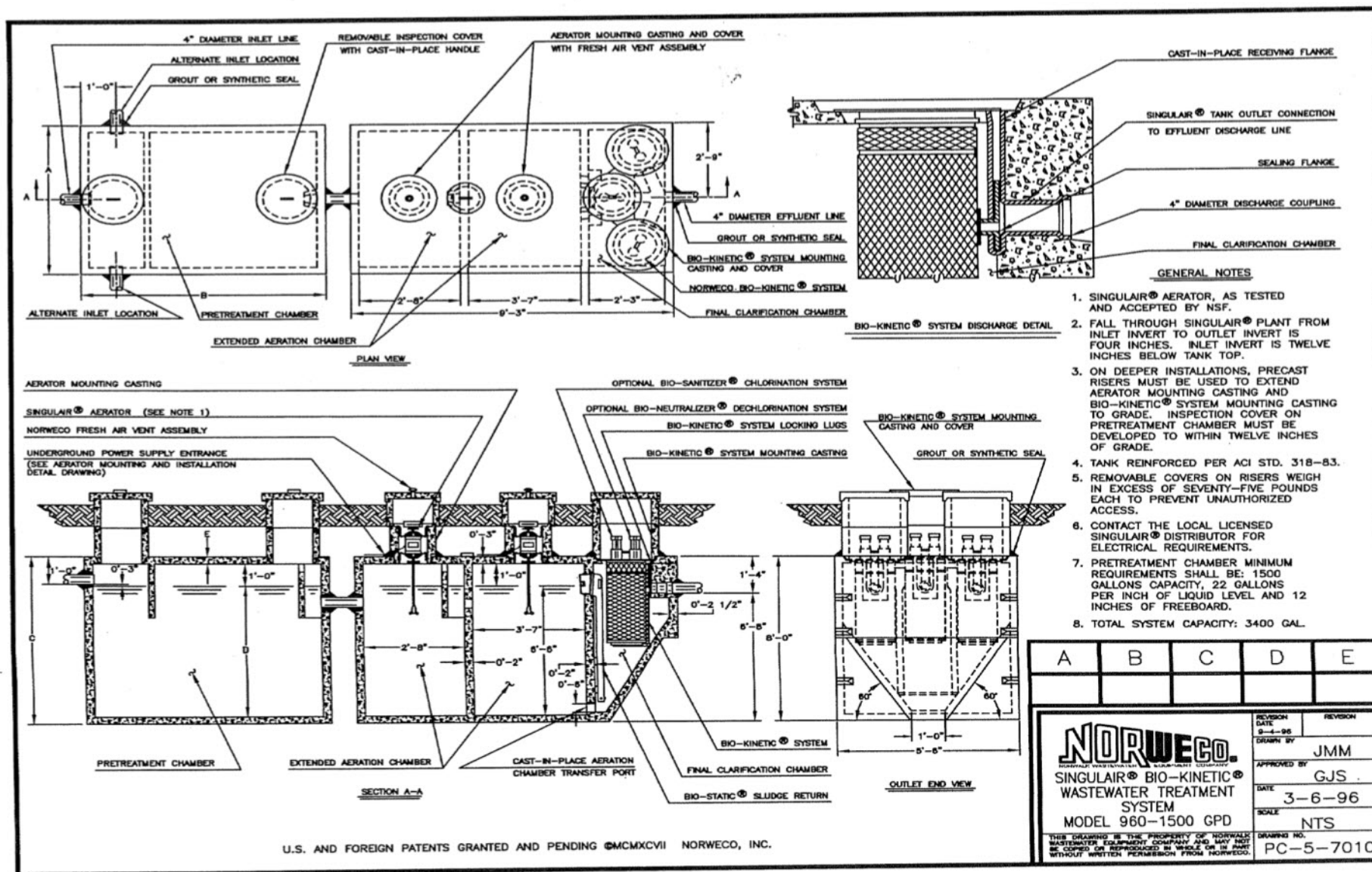


Photo No.3 Storm Water Site Plan

