MUNICIPAL WATER POLLUTION PREVENTION (MWPP)

ANNUAL REPORT

SUBMITTED BY:

TREATMENT FACILITY: Orange Beach WRF NPDES #: AL0081124

MUNICIPALITY: City of Orange Beach COUNTY: Baldwin

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Date: 4/17/2023

MWPP Annual Report
Information Source List

The following information will be needed to complete the compliance maintenance report that covers the calendar year of 2022 (due **May 31,** 2023).

Part 1
A. The average plant influent flow for each month (million gallons per day/MGD) during the year.
B. The average plant influent BOD (CBOD) for each month (mg/l and lb/day) in the year.
C. The plant's average design flow (MGD) and design BOD (CBOD) loading (lbs/day).

Part 2
A. The monthly average permit and DMR effluent concentration for BOD (CBOD), TSS, NH3-N, and/or TKN in mg/l for the year
B. The monthly average effluent limits and DMR loading for BOD (CBOD), TSS, NH3-N, and/or TKN in lbs/day for the year

Part 3 The age of the treatment plant defined as the number of years since the last major reconstruction to increase the organic or hydraulic capacity of the plant. The last calendar year minus the year the new construction was brought on-line.

Part 4 Bypass and overflow information. This is the number of bypass or overflow events of untreated wastewater due to heavy rain or equipment failure whether intentional or inadvertent from all collection systems tributary to the treatment facility.

Part 5
A. Describe the characteristics and quantity of sludge generated.
B. If sludge is landspread, how many months of sludge storage does the plant have? This should include on-site and off-site storage from the treatment plant. The digestor capacity may be used in the calculation.

Part 6
A. Sludge Disposal Method
B. The number of approved land disposal sites for sludge available, and how many months or years these disposal sites will these be available for use.

Part 7 The number of sewer extensions installed in the community last year, the design population, design flow, and design BOD (CBOD) for each sewer extension.

Part 8 Operator Certification

Part 9 Financial Status

Part 10 Subjective Evaluation

Part 11 Summary Sheet

Instructions to the Operator-in-Charge

1. Complete all sections of the MWPP Report to the best of your ability.

2. Parts 1 through 8 contain questions for which points will be generated. These points are intended to communicate to the Department and the governing body or owner the actions necessary to prevent effluent violations. Enter the point totals from Parts 1 through 8 on Part 11: Summary Sheet.

3. Add the point totals on Part 11: Summary Sheet.

4. Submit the MWPP Report to the governing body and the consulting engineer and owner for review and approval.

5. The governing body should pass a resolution which contains the following points:

   a. The resolution should acknowledge the governing body or owner has reviewed the MWPP Report.

   b. The resolution should indicate what actions will be taken to prevent effluent violations.

   c. The resolution should provide any other information the governing body or owner deems appropriate.

6. **The MWPP Report and the resolution must be submitted by May 31st to Municipal Section, Water Division, ADEM, P.O. Box 301463, Montgomery, AL 36130-1463.**

Facility Name: Orange Beach WRF AL0081124

Part 1: Influent Loading/Flows

A. List the average monthly volumetric flows and BOD_5 ($CBOD_5$) loadings received at your facility during the last calendar year.

Month	Column 1 Average Monthly Flowrate (MGD)	Column 2 Average Monthly BOD_5 ($CBOD_5$) Concentration (mg/l)	Column 3 Average Loading BOD_5 ($CBOD_5$) (lbs/day**)
January	1.77	162.3	2395
February	2.06	221.2	3800
March	2.81	218.5	5120
April	2.39	228.1	4546
May	2.84	227.5	5388
June	3.62	194.2	5863
July	4.03	192.3	6463
August	3.06	168.1	4289
September	2.68	223.7	5995
October	2.47	250.8	5166
November	1.85	211.2	3258
December	1.73	241.6	3485
Annual Avg.	2.60	211.62	4647

** As reported on NPDES Discharge Monitoring Reports (DMRs) and as required by EPA's NPDES Self-Monitoring System, User Guide, March 1985.

B. List the average design flow and average design BOD_5 ($CBOD_5$) loading for the facility below. If you are not aware of these design quantities, contact your consulting engineer.

	Average Design Flow	Average Design BOD_5 ($CBOD_5$) Loading (lbs/day)
Design Criteria	10 MGD	16,680
90% of the Design Criteria	9 MGD	15,012

C. How many times did the monthly flow (Column 1) to the WWTP exceed 90% of design flow?

0 (Check the appropriate point total)

■ 0 - 4 = 0 points ☐ 5 or more = 5 points

D. How many times did the monthly flow (Column 1) to the WWTP exceed the design flow?

0 (Check the appropriate point total)

■ 0 = 0 points ☐ 1 – 2 = 5 points ☐ 3 – 4 =10 points ☐ 5 or more =15 points

E. How many times did the monthly BOD_5 ($CBOD_5$)* loading (lbs/day) (Column 3) to the WWTP exceed 90% of the design loading?

0 (Check the appropriate point total)

■ 0 -1 = 0 points ☐ 2 – 4 =5 points ☐ 5 or more =10 points

F. How many times did the monthly BOD_5 ($CBOD_5$)* loading (lbs/day) (Column 3) to the WWTP exceed the design loading?

0 (Check the appropriate point total)

■ 0 = 0 points ☐ 1 = 10 points ☐ 2 =20 points ☐ 3 =30 points ☐ 4 =40 points ☐ 5 or more =50 points

G. Enter each point value marked for C through F and enter the sum in the appropriate blank below.

C points = 0

D points = 0

E points = 0

F points = 0

TOTAL POINTS VALUE FOR PART 1 0

Enter this value on Part 11: Summary Sheet.

*To obtain equivalent BOD_5 loading for comparison with design loading for those permittees using influent $CBOD_5$, divide annual average $CBOD_5$, loading in lbs/day from Part 1, A by 0.7.

Facility Name: Orange Beach WRF AL0081124

Part 2: Effluent Quality/Plant Performance

A. List the monthly average permit limits for the facility in the blanks below and the average monthly effluent DMR BOD_5, ($CBOD_5$) TSS, NH_3-N and/or TKN concentration produced by the facility during the last calendar year.

(1) NPDES Permit Concentration

	Months	BOD_5 ($CBOD_5$) (mg/l)	TSS (mg/l)	NH_3-N (mg/l)	TKN (mg/l)
Permit Limit	12	2.9	30	.7	2.2

(2) DMR Concentration

Qtr	Month	BOD_5 ($CBOD_5$) (mg/l)	TSS (mg/l)	NH_3-N (mg/l)	TKN (mg/l)
1	January	1.71	1.73	.09	.75
	February	2.3	3.54	.14	1.19
	March	2.6	5.17	.44	1.32
2	April	2.8	5.48	.19	1.22
	May	2.1	3.16	.1	.08
	June	2.4	3.37	.23	.85
3	July	2.3	2.84	.17	1.07
	August	1.84	2.44	.1	.77
	September	1.81	2.28	.14	.9
4	October	2.31	2.18	.42	1.33
	November	2.21	1.73	.15	.98
	December	1.96	1.56	.21	.90
	Annual Avg.	2.19	2.95	.19	.94

B. List the monthly average permit limit and DMR loadings below.

(1) NPDES Permit Loading

	Months	BOD_5 ($CBOD_5$) (lbs/day)	TSS (lbs/day)	NH_3-N (lbs/day)	TKN (lbs/day)
Permit Limit	12	241.9	2507	58.4	183.5

(2) DMR Loading

Qtr	Month	BOD_5 ($CBOD_5$) (lbs/day)	TSS (lbs/day)	NH_3-N (lbs/day)	TKN (lbs/day)
1	January	25.2	25.5	1.32	11.07
	February	39.5	67.9	2.68	18.89
	March	61.4	121.1	10.3	30.9
2	April	57.4	109.2	3.78	24.3
	May	51.6	74.8	2.36	19.8
	June	73.9	101.7	6.94	25.6
3	July	78.6	95.4	5.71	35.9
	August	46.9	62.2	2.55	19.6
	September	40.4	50.9	3.12	20.1
4	October	47.5	44.9	8.65	27.3
	November	34.0	26.6	2.31	15.1
	December	28.2	22.5	3.02	12.9
	Annual Avg.	48.7	66.8	4.39	21.7

C. During the past year did the BOD_5 ($CBOD_5$) concentration (mg/l) and/or loading (lbs/day) exceed the product of 1.4 times the monthly average permit limit during two months of any consecutive quarters? (Check the appropriate point total.)

☒ No = 0 points ☐ Yes = 121 points

D. During the past year did the BOD_5 ($CBOD_5$) concentration (mg/l) and/or loading (lbs/day), exceed the monthly average permit limit during four months of any two consecutive quarters? (Check the appropriate point total.)

☒ No = 0 points ☐ Yes = 121 points

E. During the past year did the effluent TSS concentration (mg/l) or loading (lbs/day) exceed the product of 1.4 times the monthly average permit limit during two months of any two consecutive quarters? (Check the appropriate point total.)

☒ No = 0 points ☐ Yes = 121 points

F. During the past year did the TSS concentration (mg/l) and/or loading (lbs/day) exceed the monthly average permit limit during four months of any two consecutive quarters? (Check the appropriate point total.)

☒ No = 0 points ☐ Yes = 121 points

G. During the past year did the NH_3-N or TKN concentration (mg/l) and/or loading (lbs/day) exceed the product of 1.4 times the monthly average permit limit during two months of any two consecutive quarters? (Check the appropriate point total.)

☒ No = 0 points ☐ Yes = 121 points

H. During the past year did either the NH_3-N or TKN concentration (mg/l) and/or loading (lbs/day), exceed the monthly average permit limit during four months of any two consecutive quarters? (Check the appropriate point total.)

☒ No = 0 points ☐ Yes = 121 points

I. Enter each point value checked for C through H in the blanks below.

C Points = 0

D Points = 0

E Points = 0

F Points = 0

G Points = 0

H Points = 0

HIGHEST INDIVIDUAL POINT VALUE FOR PART 2 (C-H) 0 (HIGHEST POINT = 121)
Enter this value on Part 11: Summary Sheet.

Facility Name: Orange Beach WRF AL0081124

Part 3: Age of the Wastewater Treatment Facility

A. What year was the wastewater treatment plant constructed or last reconstructed? 2011

Subtract the above answer from the report year to determine age:

Age = (Last Calendar year) - (Answer to A)

Age 12 = (2023) - (2011)

Enter Age in Part C below.

B. Check the type of treatment facility employed.

		Factor
X	Mechanical Treatment Plant	2.0
_____	Aerated Lagoon	1.5
_____	Stabilization Pond	1.0
_____	Other (Specify: _____)	1.0

C. Multiply the factor listed next to the type of the facility your community employs by the age of your facility to determine the total point value for Part 3:

2.0 (Factor) x 12 (Age) = 24 TOTAL POINT VALUE FOR PART 3

Enter the above value on Part 11: Summary Sheet. If the total point value exceeds 40, enter 40 on Part 11: Summary Sheet.

Facility Name: Orange Beach WRF AL0081124

Part 4: Bypassing and Overflows

A. How many bypass or overflow events of untreated wastewater occurred in the last year at the WWTP due to heavy rain? 0

B. How many bypass or overflow events of untreated wastewater occurred in the last year prior to the headworks of the WWTP due to heavy rain? 0

C. How many of the bypass or overflow events listed in Parts A and B have been corrected such that future bypass or overflow events at the same location due to heavy rain are not anticipated? 0

D. Add together Answers A and B and subtract Answer C from that total.

A + B – C = 0 (Check the appropriate point total.)

- [x] 0 = 0 points
- [ ] 1 = 5 points
- [ ] 2 =10 points
- [ ] 3 =15 points
- [ ] 4 =20 points
- [ ] 5 =25 points
- [ ] 6 = 30 points
- [ ] 7 = 35 points
- [ ] 8 =40 points
- [ ] 9 =45 points
- [ ] 10 =50 points
- [ ] 11 or more =100 points

E. How many bypass or overflow events of untreated wastewater occurred in the last year at the WWTP due to equipment failure? (This includes clogged/broken lines or manholes.) 0

F. How many bypass or overflow events of untreated wastewater occurred in the last year due to equipment failure prior to the headworks of the WWTP? (This includes clogged/broken lines or manholes.) 0

G. How many of the bypass or overflow events listed in Parts E and F have been corrected such that future bypass or overflow events at the same location due to the same equipment failure are not anticipated? 0

H. Add together Answers E and F and subtract Answer G from that total.

E + F – G = 0 (Check the appropriate point total.)

- [x] 0 = 0 points
- [ ] 1 = 5 points
- [ ] 2 =10 points
- [ ] 3 =15 points
- [ ] 4 =20 points
- [ ] 5 =25 points
- [ ] 6 = 30 points
- [ ] 7 = 35 points
- [ ] 8 =40 points
- [ ] 9 =45 points
- [ ] 10 =50 points
- [ ] 11 or more =100 points

I. Add point values checked in D and H and enter the total in the blank below.

TOTAL POINT VALUE FOR PART 4 0
Enter this value on Part 11: Summary Sheet.

All bypass or overflow events that have occurred in the last year (for any reason) must be individually reported with this MWPP report.

Facility Name: Orange Beach WRF AL0081124

Part 5: Sludge Quantity and Storage

A. Please provide information concerning sludge quantity, characteristics, and storage practices based on available data as requested on the *MWPP Sewage Sludge Survey,* ADEM Form 419.

B. How many months of sludge storage capacity does the wastewater treatment facility have available, either on-site or off-site? (i.e., How many months can the facility operate without land spreading or disposing of sludge?) 3

(Check the appropriate point total.)

Greater than or equal to 4 months	☐	= 0 points
Less than 4 months, but greater than or equal to 3 months	☒	= 10 points
Less than 3 months, but greater than or equal to 2 months	☐	= 20 points
Less than 2 months, but greater than or equal to 1 month	☐	= 30 points
Less than one month	☐	= 50 points

TOTAL POINT VALUE FOR PART 5 10
Enter this value on Part 11: Summary Sheet.

Part 6: Sludge Disposal Practices and Sites

A. Please provide the sludge disposal practices and site information based on available data as requested on the *MWPP Sewage Sludge Survey,* ADEM Form 419.

B. How many months or years does the facility have access to and approval for sufficient land disposal sites to provide proper land disposal? (Check the appropriate point total.)

36 or more months	■	= 0 points
24 - 35 months	☐	= 10 points
12 - 23 months	☐	= 20 points
6 - 11 months	☐	= 30 points
Less than 6 months	☐	= 50 points

TOTAL POINT VALUE FOR PART 6 0
Enter this value on Part 11: Summary Sheet.

Facility Name: Orange Beach WRF AL0081124

Part 7: New Development

Are there any major new developments (industrial, commercial, or residential) in the last calendar year or anticipated in the next 2-3 years such that either flow or BOD_5 ($CBOD_5$) loadings to the sewage system could significantly increase? Estimate additional loadings below.

Design Population Equivalent (PE): 2500 Design Flow: 0.25 MGD Design BOD_5 ($CBOD_5$): 417 lbs/day

List industrial and/or residential developments.

Will the additional loading overload the plant?
(Check the appropriate point total.)

☒ No = 0 points ☐ Yes = 121 points

Enter the point total in the blank below.

TOTAL POINT VALUE FOR PART 7 0 (highest point total = 121)
Enter this value on Part 11: Summary Sheet.

Part 8: Operator Certification

Complete the *Plant and Collection System Personnel Inventory,* ADEM Form 441.

Do both the plant operator and collection system staffing comply with ADEM Administrative Code; Division 10, Operator Certification Program?
(Check the appropriate point total.)

☒ Yes = 0 points ☐ No = 121 points

TOTAL POINT VALUE FOR PART 8 0 (highest point total = 121)
Enter this value on Part 11: Summary Sheet.

Facility Name: Orange Beach WRF AL0081124

Part 9: Financial Status

A. Are User-Charge Revenues sufficient to cover operation and maintenance expenses? If no, how are O&M costs being financed? ***Include user charge rates***.

Yes

Residential Minimum 28.00/ Month Plus rate _____/1,000 gal.

Industrial Minimum N/A Plus rate _____/1,000 gal.

Monthly residential rate based on 6,000 gallons usage $ 28.00

B. What financial resources are available to pay for the wastewater improvements and/or reconstruction needs?

Current taxes and revenue, if needed bonds and loans are available.

C. Please attach a rate sheet and the most recent audit, if available.

Part 10: Subjective Evaluation

A. Describe briefly the physical and structural conditions of the wastewater treatment facility.

Plant is 12 years old and in good condition.

B. Describe the general condition of the sewer system (sewer lines, manholes, lift stations).

Collection is in good condition. Older lift stations and mains have been or are currently being upgraded.

C. What sewage system improvements does the community have planned for construction in the next 5 years?

Possible addition to the sewer plant, upgrades on current plant lift staions and force mains.

D. What is the theoretical design life of the plant, and what is the estimated remaining useful life of the wastewater treatment facility?

Design = 15 years The plant life has been extended with upgrades due to system growth.

Estimated plant life without additions is 8 years.

E. What problems, if any, over the last year have threatened treatment or conveyance within the system?

None

F. Is the community presently involved in formal planning for treatment facility upgrading?

No

G. How many days in the last year were there residential backups at any point in the collection system for any reason other than clogging of the lateral connection? 0

H. Does the plant have a written plan for preventive maintenance on major equipment items? If yes, describe.

Yes, O&M manuels and training are provided with all equipment.

I. Does this preventive maintenance program depict frequency of intervals, types of lubrication, and other preventive maintenance tasks necessary for each piece of equipment?

(Check the appropriate response.) ■ Yes ☐ No

J. Are these preventive maintenance tasks, as well as equipment problems, being recorded and filed so future maintenance problems can be assessed properly?

(Check the appropriate response.) ■ Yes ☐ No

K. Describe any major repairs or mechanical equipment replacement made in the last year and include the approximate cost for those repairs. Do not include major treatment plant construction or upgrading programs.

No major repairs

L. List any additional comments. (Attach additional sheets if necessary.)

Facility Name: Orange Beach WRF AL0081124

Part 11: Summary Sheet

1. Enter in the values from Parts 1 through 8 in the left column below. Add the numbers in the left column to determine the MWPP Report point total the wastewater system generated for the previous calendar year.

Actual Values	Maximum Possible
Part 1 0 points	80 points
Part 2 0 points	121 points
Part 3 24 points	40 points
Part 4 0 points	200 points
Part 5 10 points	50 points
Part 6 0 points	50 points
Part 7 0 points	121 points
Part 8 0 points	121 points
Total 34 points	783 points

2. Check the facility type that best describes the plant's treatment and disposal of wastewater.

- [x] Mechanical plant with surface water discharge
- [ ] Aerated Lagoon or stabilization pond with surface water discharge
- [ ] Mechanical plant using land disposal of liquid wastes
- [ ] Aerated Lagoon or stabilization pond using land disposal of liquid wastes

3. Check the range that describes the action needed to address problems identified in the report.

- [x] 0 - 70 points Actions as Appropriate*
- [ ] 71 - 120 points Departmental Recommendation Range*
- [ ] 121 – 783 points Municipality Action Range*

***Other actions may be required by NPDES outside the scope of this report.**

4. Complete the *Municipal Water Pollution Prevention Resolution Form*, ADEM Form 418.

5. In Question 1, do any of the actual point values in the left column equal the maximum possible points in the right column?

(Check the appropriate response.) ☐ Yes ■ No

If yes, provide a written explanation for this situation in the space below.