

**UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION 4
Water Division
Atlanta Federal Center
61 Forsyth Street SW
Atlanta, Georgia 30303-8960**

**AUTHORIZATION TO DISCHARGE UNDER THE
NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM
PERMIT NUMBER
MS0053503**

Under the authority of the Clean Water Act (CWA) of 1977 (33 USC § 1251 et seq.) and in accordance with the effluent limitations, monitoring requirements, and other conditions set forth herein

Permittee: **Mississippi Band of Choctaw Indians
Post Office Box 6366
Choctaw, Mississippi 39350**

is authorized to discharge: **Municipal Wastewater**

from the facility located: **Pearl River Wastewater Treatment Facility
168 James Billie Road
Philadelphia, Mississippi 39350**

from the outfall: **001 (Latitude 32 47' 20.21" North; Longitude 89 11' 51.19" West)**

into the receiving water body: **Wolf Creek to Kentawka Canal to Pearl River**

This permit shall become effective on: July 1, 2019

This permit shall expire on: June 30, 2024

Issuance Date: June 28, 2019

The permittee shall reapply for NPDES coverage to discharge before January 2, 2024, 180 days before the expiration of this permit, if the permittee intends to continue to discharge at the facility beyond the term of this permit.



Jeannette M. Gettle, Director
Water Division

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SCHEDULE OF SUBMISSIONS

The following is a summary of some of the items which the permittee must complete and/or submit to the U.S. Environmental Protection Agency (EPA) during the term of this permit:

Item	Due Date
1. Discharge Monitoring Reports (DMRs)	Unless an exception is granted, the DMRs (EPA Form No. 3320-1) are due quarterly and must be entered into NetDMR (see Part II.B.1)
2. Submittal of NPDES Application	A complete application (Forms 1, 2A, and 2S) for the next permit cycle must be submitted to the EPA no later than 180 days before the permit expires (see 40 CFR § 122.21).

Submittal Addresses:

For DMRs

Targeting, Data & Measures Office Chief
U.S. Environmental Protection Agency, Region 4
Enforcement and Compliance Assurance Division | Targeting, Data & Measures Office
61 Forsyth Street SW | Atlanta GA 30303-8960

For NPDES Application Forms

Permitting and Grants Branch Chief
U.S. Environmental Protection Agency, Region 4
Water Division | Permitting and Grants Branch
61 Forsyth Street SW | Atlanta GA 30303-8960
R4NPDESPermits@epa.gov

PART I – LIMITATIONS AND MONITORING REQUIREMENTS

A. Effluent Limitations and Other Monitoring Requirements

1. During the period beginning on the effective date and lasting through the term of this permit, the permittee is authorized to discharge from Outfall 001 from a treatment facility with a **design capacity of 1.5 MGD** to the receiving water body. Such discharges shall be limited and monitored by the permittee as specified in Table 1.

Table 1: Limitations and Monitoring Requirements for Outfall 001

PARAMETERS	DISCHARGE LIMITATIONS				MONITORING REQUIREMENTS		
	Daily Min	Monthly Avg	Weekly Avg	Daily Max	Sampling Location	Measurement Frequency	Sample Type
Flow, MGD	---	Report	Report	---	Effluent	Continuous	Recorder
Dissolved Oxygen (DO), mg/l	6.0	---	---	---	Effluent	1/Week	Grab
Carbonaceous Biochemical Oxygen Demand 5-Day (CBOD ₅), mg/l (lbs/day)	---	Report 10.0 (34.2)	---	---	Influent Effluent	1/Week	24-hour Composite 24-hour Composite
Carbonaceous Biochemical Oxygen Demand 5-Day (CBOD ₅) Percent Removal, %	85% ^a				Influent/Effluent	1/Month	Calculated
Total Suspended Solids (TSS), mg/l (lbs/day)	---	Report 30.0 (375)	---	---	Influent Effluent	1/Week	24-hour Composite 24-Hour Composite
Total Suspended Solids (TSS) Percent Removal, %	85% ^a				Influent/Effluent	1/Month	Calculated
Total Ammonia as Nitrogen, mg/l (lbs/day)	---	2.0 (25.0)	3.0 (37.5)	---	Effluent	1/Week	24-hour Composite
pH, standard units (SU)	6.5	---	---	9.0	Effluent	1/Week	Grab
E. coli, #/100 ml		126 ^b	---	410	Effluent	1/Week	Grab
Total Recoverable Copper, µg/l	---	18.76	---	27.19	Effluent	1/Month	Grab

PARAMETERS	DISCHARGE LIMITATIONS				MONITORING REQUIREMENTS		
	Daily Min	Monthly Avg	Weekly Avg	Daily Max	Sampling Location	Measurement Frequency	Sample Type
Total Hardness as CaCO ₃ , mg/l	Report	Report	---	---	Effluent	1/Month See I.A.8	Grab
Total Nitrogen (TN) as Nitrogen, mg/l	---	Report	Report	---	Effluent	Quarterly	Grab
Total Phosphorus, (TP) as Phosphorous, mg/l	---	Report	Report	---	Effluent	Quarterly	Grab
Chronic Whole Effluent Toxicity, IC ₂₅	See I.A.7				Effluent	See Part IV	
In-stream monitoring	---	---	---	---	Upstream/ downstream	See I.A.9 and I.A.10	Grab

^a Each month, the monthly average effluent CBOD₅ and TSS concentrations shall not exceed 15% of the average of their respective influent concentration values (85% removal). The percent removal shall be reported on the DMR and submitted electronically using NetDMR.

^b The geometric mean of the E. coli values collected during any monthly period shall not exceed 126 colonies per 100 ml of effluent sample and shall be reported as the monthly average value on the DMR Form.

2. Samples taken in compliance with the influent monitoring requirements specified in this permit shall be taken at the nearest accessible point prior to treatment. Samples taken in compliance with the effluent monitoring requirements specified in this permit shall be taken at the nearest accessible point to the outfall, after final treatment but prior to the actual discharge or mixing with the receiving waters (unless otherwise specified).
3. Any bypass of the treatment facility, which is not included in the effluent monitored above, is to be monitored for flow and all other parameters. For parameters other than flow, at least one grab sample per day shall be monitored. Daily flow shall be monitored or, if monitoring is not feasible, estimated to obtain reportable data. All monitoring results shall be reported on the DMR and submitted electronically using NetDMR.
4. There shall be no discharge of floating debris, oil, scum, and other floating materials in amounts sufficient to be unsightly or deleterious.
5. If the results for a given sample analysis are such that any parameter (other than E. coli) is not detected at or above the minimum level for the test method used, a value of zero will be used for that sample in calculating an arithmetic mean value for the parameter. If the resulting calculated arithmetic mean value for that reporting period is zero, the permittee shall report "NODI=B" on the DMR. For E. coli, a value of 1.0 shall be used in calculating the geometric mean. If the resulting E. coli mean value is 1.0, the permittee shall report "NODI=B" on the DMR. For each quantitative sample value that is not detectable, the test method used and the minimum level for

that method for that parameter shall be attached to and submitted with the DMR. The permittee shall then be considered in compliance with the appropriate effluent limitation and/or reporting requirement.

6. Overflow identification: The permittee shall identify all wastewater discharges at locations not authorized as permitted outfalls that occur prior to the headworks of the wastewater treatment plant covered by this permit. The permittee shall submit, with the scheduled DMR, the following information for each discharge event at each source that occurs during the reporting period covered by the DMR:
 - (1) the cause of the discharge;
 - (2) duration and volume (estimate if unknown);
 - (3) description of the source, e.g., manhole cover, pump station;
 - (4) type of collection system that overflowed, i.e., combined or separate;
 - (5) location by street address, or any other appropriate method;
 - (6) date of event;
 - (7) the ultimate destination of the flow, e.g., surface water body, land use location, via municipal separate storm sewer system to a surface water body, (show location on a USGS map or copy thereof); and
 - (8) corrective actions or plans to eliminate future discharges.

The permittee shall refer to Part III.D.8 of this permit which contains information about reporting unpermitted discharge events. Submittal or reporting of any of this information does not provide relief from any subsequent enforcement actions for unpermitted discharges to waters of the United States.

7. The effluent shall not be chronically toxic to, or produce adverse physiological or behavioral responses in, aquatic animals. An inhibition concentration (IC₂₅) of less than or equal to 100% will constitute a violation. The testing for this requirement shall conform with Part IV of this permit.
8. Total hardness shall be measured at the time of the copper effluent sample.
9. Downstream Monitoring Requirements: During the months of June through September, a grab sample shall be taken from Kentawka Canal at the location 0.75 miles downstream of the confluence of Wolf Creek and Kentawka Canal. The sample shall be taken between the hours of 6:00 p.m. and 6:00 a.m. at the frequency of 1 day/2 weeks. Dissolved Oxygen (DO), pH, temperature and conductivity shall be measured from each sample.

During the months of June through September, a grab sample shall be taken from the Pearl River at a location 3.5 miles downstream of the confluence of Kentawka Canal and the Pearl River. The sample shall be taken between the hours of 6:00 p.m. and 6:00 a.m. at the frequency of 1 day/2 weeks. DO, pH, temperature and conductivity shall be measured from each sample.

All monitoring results from both sampling locations shall be reported on a DMR Form.

10. Upstream Monitoring Requirements: During the months of June through September, a grab sample shall be taken from Wolf Creek at a location 0.2 miles upstream of the outfall. The sample shall be taken between the hours of 6:00 p.m. and 6:00 a.m. at the frequency of 1 day/2 weeks. DO, pH, temperature and conductivity shall be measured from each sample. All monitoring results from both sampling locations shall be reported on a DMR Form.

11. The effluent shall be monitored for the parameters found in Part D of the NPDES Form 2A Application (OMB Number 2040-0086). At a minimum, effluent testing data must be based on at least three pollutant scans. The first scan must be taken in the third year after permit issuance. The second scan must be taken in the fourth year after permit issuance. The third scan must be taken in the fifth year. Sampling and testing must comply with the Quality Assurance/Quality Control requirements of 40 CFR Part 136 and must reflect seasonal variation. The results shall be submitted to EPA, Region 4 at the address listed in the Schedule of Submission on page 3 of the permit within one month after the sampling for these parameters. The EPA will evaluate the data and should the evaluation warrant, the permit may be modified to include any more stringent permit conditions including, but not limited to, effluent limitations.

B. Sludge Management Practices

1. The permittee shall comply with all existing federal laws and regulations that apply to sewage sludge use and disposal practices including 40 CFR Part 503 and 40 CFR Part 258 which are hereby incorporated as part of the permit by reference, and the Clean Water Act (CWA) Section 405(d) technical standards. If an applicable management or practice or numerical limitation for pollutants in sewage sludge more stringent than existing federal regulations is promulgated under Section 405(d) of the CWA, this permit may be modified or revoked or reissued to conform to the promulgated regulations.
2. The permittee is responsible for assuring that all biosolids produced at its facility are used or disposed of in accordance with these rules, whether the permittee uses or disposes of the biosolids itself or transfers them to another party for further treatment, use, or disposal. The permittee is responsible for informing subsequent preparers, appliers, and disposers of the requirements that they must meet under these rules.
3. The permittee shall submit within 30 days of the effective date of this permit the sludge production volume (specify if daily or annual; if actual volume is not known, estimate the quantity of sludge being handled and so indicate) and the sludge disposal practice.
4. The permittee shall provide sludge inventory data to EPA as part of EPA's inventory updates as requested. The data should include, but not be limited to, sludge quantity and characteristics.
5. Reopener. If an applicable "acceptable management practice" or numerical limitation for pollutants in sewage sludge promulgated under Clean Water Act (CWA) § 405(d)(2), as amended by the Water Quality Act of 1987, is more stringent than the sludge pollutant limit or acceptable management practice in this permit or controls a pollutant not limited in this permit, this permit shall be promptly modified or revoked and reissued to conform to the requirements promulgated under CWA § 405(d)(2). The permittee shall comply with the limitations by no later than the compliance deadline specified in the applicable regulations as required by CWA § 405(d)(2)(D).
6. Notice of change in sludge disposal practice. The permittee shall give prior notice to the Director of any change planned in the permittee's sludge disposal practice.
7. Cause for modification. 40 CFR § 122.62(a)(1) provides the alterations are a cause for modification but not revocation and reissuance of permits except when the permittee requests or agrees. Alterations are defined as follows: There are material and substantial changes or additions to the permitted facility or activity (including a change or changes in the permittee's sludge use or disposal practice) which occurred after permit issuance which justify the application of permit conditions that are different or absent in the existing permit.

8. Upon review of information provided by the permittee as required by the above items, or results from an on-site inspection, the permit shall be subject to modification to incorporate appropriate requirements.
9. Duty to mitigate: The permittee shall take all reasonable steps to minimize or prevent any discharge or biosolids use or disposal in violation of this permit which has a reasonable likelihood of adversely affecting human health or the environment.
10. Annual reporting is required when for class I sludge management facilities, publicly owned treatment works (POTWs) with a design flow rate equal to or greater than one million gallons per day, and POTWs that serve 10,000 people or more when sewage sludge is applied to the land, placed on a surface disposal site, or fired in a sewage sludge incinerator. If applicable, the permittee shall submit an annual sludge report containing the information required in 40 CFR Part 503 by February 19th of each calendar year. The report shall cover the previous calendar year. The report shall be submitted via EPA's Central Data Exchange website at: <https://cdx.epa.gov/cdx>.

C. Schedule of Compliance

1. The permittee shall achieve operational levels and compliance with the effluent limitations specified for discharges on the effective date of the permit.

PART II – OTHER PERMIT REQUIREMENTS

A. Reporting, Monitoring, and Recording Requirements

1. Electronic Reporting Requirements

- a. Monitoring data required by this permit shall be submitted on EPA Form 3320-1 Discharge Monitoring Report (DMR) forms using the electronic DMR (NetDMR) internet application. NetDMR is a web-based application that allows National Pollutant Discharge Elimination System (NPDES) Permittee Users to enter and electronically submit DMR data through the Central Data Exchange (CDX) to the Integrated Compliance Information System (ICIS). EPA's NetDMR webpage can be found at: <https://cdxnodengn.epa.gov/net-netdmr/>.
- b. The DMRs shall be signed by a facility's Responsible Official or a Delegated Responsible Official (i.e. a person delegated by the Responsible Official). The Responsible Official of a facility is defined in Part V. For NetDMR, the person(s) viewing, editing, signing and submitting the DMRs will need to register for a new account managed by EPA Region 4. A request for signatory privilege requires submission of a Subscriber Agreement to EPA Region 4. Additionally, Delegated Responsible Officials must be delegated by the Responsible Official, either on-line using NetDMR, or on a paper delegation form provided by EPA. For more information and guidance on NetDMR, please view the following web page: <https://netdmr.zendesk.com/home>
- c. DMRs submitted using NetDMR shall be submitted to EPA Region 4 by the 21st day of the month (April, July, October, January) following the quarter for which the monitoring was completed.

A paper copy of the submitted EPA 3320-1 DMR shall be maintained onsite for records retention purposes. For NetDMR users, view and print the DMR from the Submission Report Information page after each original or revised DMR is submitted.

- d. DMRs must be reported using EPA's electronic NetDMR tool unless a waiver from electronic reporting has been granted from EPA Region 4.

2. Monitoring procedures

Monitoring and sampling must be conducted according to test procedures approved under 40 CFR Part 136, unless other test procedures have been specified in this permit or approved by EPA as an alternate test procedure under 40 CFR § 136.5.

3. Additional monitoring by the Permittee

If the permittee monitors any pollutant more frequently than required by this permit, using test procedures approved under 40 CFR Part 136 or as specified in this permit, the permittee must include the results of this monitoring in the calculation and reporting of the data submitted in the DMR. Upon request by EPA, the permittee must submit results of any other sampling, regardless of the test method used.

In order to ensure that the effluent limits set forth in this permit are not violated at times other than when routine samples are taken, the permittee must collect additional samples at the outfall

whenever any discharge occurs that may reasonably be expected to cause or contribute to a violation that is unlikely to be detected by a routine sample. The permittee must analyze the additional samples for those parameters limited in Table 1: Effluent Limitations and Monitoring Requirements.

B. Reopener Clause

This permit shall be modified, or alternatively, revoked and reissued, to comply with any applicable effluent standard or limitation issued or approved under CWA § 301(b)(2)(C), CWA § 301(b)(2)(D), and CWA § 307(a)(2), as amended, if the effluent standard or limitation so issued or approved:

1. Contains different conditions or is otherwise more stringent than any condition in the permit; or
2. Controls any pollutant not addressed in the permit.

The permit as modified or reissued under this paragraph shall contain any other requirements of the CWA then applicable.

PART III – STANDARD CONDITIONS FOR NPDES PERMITS

A. General Conditions

1. Duty to Comply [40 CFR §§ 122.41(a) and 122.41(a)(1)]

The permittee must comply with all conditions of this permit. Any permit noncompliance constitutes a violation of the Clean Water Act (CWA or Act) and is grounds for enforcement action; for permit termination, revocation and reissuance, or modification; or denial of a permit renewal application. The permittee shall comply with effluent standards or prohibitions established under Section 307(a) of the CWA for toxic pollutants and with standards for sewage sludge use or disposal established under Section 405(d) of the CWA within the time provided in the regulations that establish these standards or prohibitions or standards for sewage sludge use or disposal, even if the permit has not yet been modified to incorporate the requirement.

2. Penalties for Violations of Permit Conditions [40 CFR § 122.41(a)(2) and 40 CFR § 122.41(a)(3)]

(Note: Civil and administrative penalty amounts described in this subsection are based on adjustments to the original statutory amounts based on inflation, pursuant to the Federal Civil Penalties Inflation Adjustment Act of 1990 (28 U.S.C. § 2461 note; Pub. L. 101- 410, enacted October 5, 1990; 104 Stat. 890), as amended by the Debt Collection Improvement Act of 1996 (31 U.S.C. § 3701 note; Public Law 104-134, enacted April 26, 1996; 110 Stat. 1321) and as set forth at 40 CFR § 19.4.)

The CWA provides that any person who violates Section 301, 302, 306, 307, 308, 318 or 405 of the Act, or any permit condition or limitation implementing any such sections in a permit issued under Section 402, or any requirement imposed in a pretreatment program approved under Sections 402(a)(3) or 402(b)(8) of the Act, is subject to a civil penalty not to exceed \$51,570 per day for each violation. The CWA provides that any person who negligently violates Sections 301, 302, 306, 307, 308, 318, or 405 of the Act, or any condition or limitation implementing any of such sections in a permit issued under Section 402 of the Act, or any requirement imposed in a pretreatment program approved under Section 402(a)(3) or 402(b)(8) of the Act, is subject to criminal penalties of \$2,500 to \$25,000 per day of violation, or imprisonment of not more than one year, or both. In the case of a second or subsequent conviction for a negligent violation, a person shall be subject to criminal penalties of not more than \$50,000 per day of violation, or by imprisonment of not more than two years, or both. Any person who knowingly violates such sections, or such conditions or limitations is subject to criminal penalties of \$5,000 to \$50,000 per day of violation, or imprisonment for not more than three years, or both. In the case of a second or subsequent conviction for a knowing violation, a person shall be subject to criminal penalties of not more than \$100,000 per day of violation, or imprisonment of not more than six years, or both. Any person who knowingly violates Section 301, 302, 303, 306, 307, 308, 318 or 405 of the Act, or any permit condition or limitation implementing any of such sections in a permit issued under Section 402 of the Act, and who knows at that time that he thereby places another person in imminent danger of death or serious bodily injury, shall, upon conviction, be subject to a fine of not more than \$250,000 or imprisonment of not more than 15 years, or both. In the case of a second or subsequent conviction for a knowing endangerment violation, a person shall be subject to a fine of not more than \$500,000 or by imprisonment of not more than 30 years, or both. An organization, as defined in Section 309(c)(3)(B)(iii) of the CWA, shall, upon conviction of violating the imminent danger provision, be subject to a fine of not more than \$1,000,000 and can

be fined up to \$2,000,000 for second or subsequent convictions.

Any person may be assessed an administrative penalty by the Administrator for violating Section 301, 302, 306, 307, 308, 318 or 405 of this Act, or any permit condition or limitation implementing any of such sections in a permit issued under Section 402 of this Act.

Administrative penalties for Class I violations are not to exceed \$20,628 per violation, with the maximum amount of any Class I penalty assessed not to exceed \$51,570. Penalties for Class II violations are not to exceed \$20,628 per day for each day during which the violation continues, with the maximum amount of any Class II penalty not to exceed \$257,848. The specific penalty amounts described above for violations reflect those in effect at the time of permit issuance and are subject to change.

3. Civil and Criminal Liability [40 CFR § 122.41(m) and (n)]

Except as provided in permit conditions on “Bypassing” Section B, Paragraph 3, and “Upset” Section B, Paragraph 4, nothing in this permit shall be construed to relieve the permittee from civil or criminal penalties for noncompliance.

4. Duty to Mitigate [40 CFR § 122.41(d)]

The permittee shall take all reasonable steps to minimize or prevent any discharge or sludge use or disposal in violation of this permit which has a reasonable likelihood of adversely affecting human health or the environment.

5. Permit Actions [40 CFR § 122.41(f)]

This permit may be modified, revoked and reissued, or terminated for cause. The filing of a request by the permittee for a permit modification, revocation and reissuance, or termination, or a notification of planned changes or anticipated noncompliance does not stay any permit condition.

6. Toxic Pollutants [40 CFR § 122.44(b)(1)]

If any applicable toxic effluent standard or prohibition (including any schedule of compliance specified in such effluent standard or prohibition) is promulgated under Section 307(a) of the CWA for a toxic pollutant and that standard or prohibition is more stringent than any limitation on the pollutant in the permit, the Director shall institute proceedings under these regulations to modify or revoke and reissue the permit to conform to the toxic effluent standard or prohibition.

7. Oil and Hazardous Substance Liability

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

8. State Laws

Nothing in this permit shall be construed to preclude the institution of any legal action or relieve the permittee from any responsibilities, liabilities, or penalties established pursuant to any applicable State law or regulation under authority preserved by Section 510 of the CWA.

9. Effect of a Permit [40 CFR § 122.5(a)(1) and (2)]

Except for any toxic effluent standards and prohibitions imposed under Section 307 of the CWA and “standards for sewage sludge use or disposal” under Section 405(d) of the CWA, compliance with a permit during its term constitutes compliance, for purposes of enforcement, with Sections 301, 302, 306, 307, 318, 403, and 405 (a)-(b) of the CWA. However, a permit may be modified, revoked and reissued, or terminated during its term for cause as set forth in 40 CFR §§ 122.62 and 122.64.

Compliance with a permit condition which implements a particular “standard for sewage sludge use or disposal” shall be an affirmative defense in any enforcement action brought for a violation of that “standard for sewage sludge use or disposal” pursuant to Sections 405(e) and 309 of the CWA.

10. Property Rights [40 CFR § 122.5(b), 40 CFR § 122.41(g), and 40 CFR § 122.5(c)]

This permit does not convey any property rights of any sort, or any exclusive privilege. The issuance of a permit does not authorize any injury to persons or property or invasion of other private rights, or any infringement of State or local law or regulations.

11. Onshore or Offshore Construction

This permit does not authorize or approve the construction of any onshore or offshore physical structures or facilities or the undertaking of any work in any waters of the United States.

12. Severability

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

13. Duty to Provide Information [40 CFR § 122.41(h)]

The permittee shall furnish to the Director, within a reasonable time, any information which the Director may request to determine whether cause exists for modifying, revoking and reissuing, or terminating this permit or to determine compliance with this permit. The permittee shall also furnish to the Director upon request, copies of records required to be kept by this permit.

B. Operation and Maintenance of Pollution Controls

1. Proper Operation and Maintenance [40 CFR § 122.41(e)]

The permittee shall at all times properly operate and maintain all facilities and systems of treatment and control (and related appurtenances) which are installed or used by the permittee to achieve compliance with the conditions of this permit. Proper operation and maintenance also includes adequate laboratory controls and appropriate quality assurance procedures. This provision requires the operation of back-up or auxiliary facilities or similar systems which are installed by a permittee only when the operation is necessary to achieve compliance with the conditions of the permit.

2. Need to Halt or Reduce Activity Not a Defense [40 CFR § 122.41(c)]

It shall not be a defense for a permittee in an enforcement action that it would have been necessary to halt or reduce the permitted activity in order to maintain compliance with the conditions of this permit.

3. Bypass of Treatment Facilities [40 CFR § 122.41(m)(1)-(4)]

a. Definitions

- (1) “**Bypass**” means the intentional diversion of waste streams from any portion of a treatment facility.
- (2) “**Severe property damage**” means substantial physical damage to property, damage to the treatment facilities which causes them to become inoperable, or substantial and permanent loss of natural resources which can reasonably be expected to occur in the absence of a bypass. Severe property damage does not mean economic loss caused by delays in production.

b. Bypass not exceeding limitations.

The permittee may allow any bypass to occur which does not cause effluent limitations to be exceeded, but only if it also is for essential maintenance to assure efficient operation. These bypasses are not subject to the provisions of Paragraphs c. and d. of this subsection.

c. Notice

- (1) **Anticipated bypass.** If the permittee knows in advance of the need for a bypass, it shall submit prior notice to the Director, if possible at least ten days before the date of the bypass.
- (2) **Unanticipated bypass.** The permittee shall submit notice of an unanticipated bypass as required in Section D, Subsection 8 (24-hour notice).

d. Prohibition of bypass

- (1) Bypass is prohibited, and the Director may take enforcement action against a permittee for bypass, unless:
 - (a) Bypass was unavoidable to prevent loss of life and person injury, or severe property damage; and
 - (b) There were no feasible alternatives to the bypass, such as the use of auxiliary treatment facilities, retention of untreated wastes, or maintenance during normal periods of equipment downtime. This condition is not satisfied if adequate back-up equipment should have been installed in the exercise of reasonable engineering judgment to prevent a bypass which occurred during normal periods of equipment downtime or preventive maintenance; and
 - (c) The permittee submitted notices as required under Paragraph c. of this subsection.

(2) The Director may approve an anticipated bypass, after considering its adverse effects, if the Director determines that it will meet the three conditions listed above in Paragraph d(1) of this subsection.

4. Upsets [40 CFR § 122.41(n)(1)-(4)]

a. Definition

“**Upset**” means an exceptional incident in which there is unintentional and temporary noncompliance with technology-based permit effluent limitations because of factors beyond the reasonable control of the permittee. An upset does not include noncompliance to the extent caused by operational error, improperly designed treatment facilities, inadequate treatment facilities, lack of preventive maintenance, or careless or improper operation.

b. Effect of an upset

An upset constitutes an affirmative defense to an action brought for noncompliance with such technology-based permit effluent limitations if the requirements of Paragraph c. of this subsection are met. No determination made during administrative review of claims that noncompliance was caused by upset, and before an action for noncompliance, is final administrative action subject to judicial review.

c. Conditions necessary for a demonstration of upset

A permittee who wishes to establish the affirmative defense of upset shall demonstrate, through properly signed, contemporaneous operating logs, or other relevant evidence that:

- (1) An upset occurred and that the permittee can identify the cause(s) of the upset;
- (2) The permitted facility was at the time being properly operated;
- (3) The permittee submitted notice of the upset as required in Section D, Subsection 8 (24-hour notice); and
- (4) The permittee complied with any remedial measures required under Section A, Subsection 4.

d. Burden of proof

In any enforcement proceeding the permittee seeking to establish the occurrence of an upset has the burden of proof.

5. Removed Substances

This permit does not authorize discharge of solids, sludge, filter backwash, or other pollutants removed in the course of treatment or control of wastewaters of the United States unless specifically limited in Part I.

C. Monitoring and Records

1. Representative Sampling [40 CFR § 122.41(j)(1)]

Samples and measurements taken for the purpose of monitoring shall be representative of the monitored activity. All samples shall be taken at the monitoring points specified in this permit (Part I.A.2). Monitoring points shall not be changed without notification to and the approval of the Director.

2. Flow Measurements

Appropriate flow measurement devices and methods consistent with accepted scientific practices shall be selected and used to insure the accuracy and reliability of measurements of the volume of monitored discharges. The devices shall be installed, calibrated, and maintained to ensure that the accuracy of all measurements are consistent with the accepted capability of that type of device. Devices selected shall be capable of measuring flows with a maximum deviation of less than \pm 10% from the true discharge rates throughout the range of expected discharge volumes.

3. Monitoring Procedures [40 CFR § 122.41(j)(4)]

Monitoring results must be conducted according to test procedures approved under 40 CFR Part 136 or, in the case of Sewage sludge use or disposal, approved under 40 CFR Part 136 unless otherwise specified in 40 CFR Part 503, unless other test procedures have been specified in the permit.

4. Penalties for Tampering [40 CFR § 122.41(j)(5)]

The CWA provides that any person who falsifies, tampers with, or knowingly renders inaccurate any monitoring device or method required to be maintained under this permit shall, upon conviction, be punished by a fine of not more than \$10,000, or by imprisonment for not more than 2 years, or both. If a conviction of a person is for a violation committed after a first conviction of such person under this paragraph, punishment is a fine of not more than \$20,000 per day of violation, or by imprisonment of not more than 4 years, or both.

5. Retention of Records [40 CFR § 122.41(j)(2)]

Except for records of monitoring information required by this permit related to the permittee's sewage sludge use and disposal activities, which shall be retained for a period of at least five years (or longer as required by 40 CFR Part 503), the permittee shall retain records of all monitoring information, including all calibration and maintenance records and all original strip chart recordings for continuous monitoring instrumentation, copies of all reports required by this permit, and records of all data used to complete the application for this permit, for a period of at least 3 years from the date of the sample, measurement, report or application. This period may be extended by request of the Director at any time.

6. Record Contents [40 CFR § 122.41(j)(3)(i)-(vi)]

Records of monitoring information shall include:

- a. The date, exact place, and time of sampling or measurements;

- b. The individual(s) who performed the sampling or measurements;
- c. The date(s) analyses were performed;
- d. The individual(s) who performed the analyses;
- e. The analytical techniques or methods used; and
- f. The results of such analyses.

7. Inspection and Entry [40 CFR § 122.41(i)(1)-(4)]

The permittee shall allow the Director or an authorized representative (including an authorized contractor acting as a representative of the Director), upon presentation of credentials and other documents as may be required by law, to:

- a. Enter upon the permittee's premises where a regulated facility or activity is located or conducted, or where records must be kept under the conditions of this permit;
- b. Have access to and copy, at reasonable times, any records that must be kept under the conditions of this permit;
- c. Inspect at reasonable times any facilities, equipment (including monitoring and control equipment), practices, or operations regulated or required under this permit; and
- d. Sample or monitor at reasonable times, for the purposes of assuring permit compliance or as otherwise authorized by the CWA, any substances or parameters at any location.

D. Reporting Requirements

1. Change in Discharge [40 CFR § 122.41(l)(1)(i)-(iii)]

The permittee shall give notice to the Director as soon as possible of any planned physical alterations or additions to the permitted facility. Notice is required only when:

- a. The alteration or addition to a permitted facility may meet one of the criteria for determining whether a facility is a new source in 40 CFR § 122.29(b); or
- b. The alteration or addition could significantly change the nature or increase the quantity of pollutants discharged. This notification applies to pollutants which are subject neither to effluent limitations in the permit, nor to notification requirements under Section D, Subsection 11.
- c. The alteration or addition results in a significant change in the permittee's sludge use or disposal practices, and such alteration, addition, or change may justify the application of permit conditions that are different from or absent in the existing permit, including notification of additional use or disposal sites not reported during the permit application process or not reported pursuant to an approved land application plan.

2. Anticipated Noncompliance [40 CFR § 122.41(l)(2)]

The permittee shall give advance notice to the Director of any planned changes in the permitted facility or activity which may result in noncompliance with permit requirements.

Any maintenance of facilities, which might necessitate unavoidable interruption of operation and degradation of effluent quality, shall be scheduled during noncritical water quality periods and carried out in a manner approved by the Director.

3. Transfer of Ownership of Control [40 CFR § 122.41(l)(3), § 122.61, and § 122.61(b)]

a. This permit is not transferable to any person except after notice to the Director. The Director may require modification or revocation and reissuance of the permit to change the name of the permittee and incorporate such other requirements as may be necessary under the CWA.

b. In some cases, modification or revocation and reissuance is mandatory.

c. Automatic Transfers. As an alternative to transfers of permits by modification, any NPDES permit may be automatically transferred to a new permittee if:

(1) The current permittee notifies the Director at least 30 days in advance of the proposed transfer date in Subparagraph c(2) of this subsection;

(2) The notice includes a written agreement between the existing and new permittee(s) containing a specific date for transfer of permit responsibility, coverage, and liability between them; and

(3) The Director does not notify the existing permittee and the proposed new permittee of his or her intent to modify or revoke and reissue the permit. A modification under this subparagraph may also be a minor modification under 40 CFR § 122.63. If this notice is not received, the transfer is effective on the date specified in the agreement mentioned in Subparagraph c(2) of this subsection.

4. Monitoring Reports [40 CFR § 122.41(l)(4) and 40 CFR § 122.41(l)(4)(i)]

Monitoring results shall be reported at the intervals specified in Part I of the permit. Monitoring results must be reported on a DMR or forms provided or specified by the Director for reporting results of monitoring of sewage sludge use or disposal practices.

5. Additional Monitoring by the Permittee [40 CFR § 122.41(l)(4)(ii)]

If the permittee monitors any pollutant more frequently than required by the permit using test procedures approved under 40 CFR Part 136 or, in the case of sewage sludge use or disposal, approved under 40 CFR Part 136 unless otherwise specified in 40 CFR Part 503, or as specified in the permit, the results of this monitoring shall be included in the calculation and reporting of the data submitted in the DMR or sewage sludge reporting form specified by this permit.

6. Averaging of Measurements [40 CFR § 122.41(l)(4)(iii)]

Calculations for all limitations which require averaging of measurements shall utilize an

arithmetic mean unless otherwise specified by the Director in this permit.

7. Compliance Schedules [40 CFR § 122.41(l)(5)]

The permittee shall achieve compliance with the effluent limitations and monitoring requirements specified for discharges by the effective date of this permit. Reports of compliance or noncompliance with, or any progress reports on, interim and final requirements contained in any compliance schedule of this permit shall be submitted no later than 14 days following each schedule date. Any reports of noncompliance shall include the cause of noncompliance, any remedial actions taken, and the probability of meeting the next scheduled requirement.

8. Twenty-Four Hour Reporting [40 CFR §§ 122.44(g), 122.41(l)(6), and 122.44(g)]

The permittee shall report to the Director any noncompliance which may endanger health or the environment. Any information shall be provided orally within 24 hours from the time the permittee becomes aware of the circumstances. A written submission shall also be provided within 5 calendar days of the time the permittee becomes aware of the circumstances. The written submission shall contain a description of the noncompliance and its cause; the period of noncompliance, including exact dates and times, and if the noncompliance has not been corrected, the anticipated time it is expected to continue; and steps taken or planned to reduce, eliminate, and prevent reoccurrence of the noncompliance.

The following shall be included as information which must be reported within 24 hours under this paragraph. The Director may waive the written report on a case-by-case basis for reports under this subsection if the oral report has been received within 24 hours.

- a. Any unanticipated bypass which exceeds any effluent limitation in the permit.
- b. Any upset which exceeds any effluent limitation in the permit.
- c. Violation of a maximum daily discharge limitation for any of the pollutants listed by the Director in the permit to be reported within 24 hours.

9. Other Noncompliance [40 CFR § 122.41(l)(7)]

The permittee shall report all instances of noncompliance not reported under Section D at the time DMRs are submitted. The reports shall contain the information listed in Section D, Subsection 8.

10. Other Information [40 CFR § 122.41(l)(8)]

Where the permittee becomes aware that it failed to submit any relevant facts in a permit application or submitted incorrect information in a permit application or in any report to the Director, it shall promptly submit such facts or information to the Director.

11. Changes in Discharge of Toxic Substances [40 CFR § 122.42(a)(1)(i-iii) and 40 CFR § 122.42(a)(2)(i-iii)]

The following conditions apply to all NPDES permits within the categories specified below:

- a. Existing manufacturing, commercial, mining, and silvicultural dischargers. All existing manufacturing, commercial, mining, and silvicultural dischargers must notify the Director as soon as they know or have reason to believe:
 - (1) That any activity has occurred or will occur which would result in the discharge, on a routine or frequent basis, of any toxic pollutant which is not limited in the permit, if that discharge will exceed the highest of the following “notification levels”:
 - (a) One hundred micrograms per liter (100 µg/l);
 - (b) Two hundred micrograms per liter (200 µg/l) for acrolein and acrylonitrile; five hundred micrograms per liter (500 µg/l) for 2,4-dinitrophenol and for 2-methyl-4,6-dinitrophenol; and one milligram per liter (1 mg/l) for antimony; or
 - (c) Five (5) times the maximum concentration value reported for that pollutant in the permit application in accordance with 40 CFR § 122.21(g)(7).
 - (2) That any activity has occurred or will occur which would result in any discharge, on a non-routine or infrequent basis, of a toxic pollutant which is not limited in the permit, if that discharge will exceed the highest of the following “notification levels”:
 - (a) Five hundred micrograms per liter (500 µg/l);
 - (b) One milligram per liter (1 mg/l) for antimony; or
 - (c) Ten (10) times the maximum concentration value reported for that pollutant in the permit application in accordance with 40 CFR § 122.21(g)(7).
- b. Publicly owned treatment works (POTWs). All POTWs must provide adequate notice to the Director of the following:
 - (1) Any new introduction of pollutants into the POTW from an indirect discharger which would be subject to Section 301 or 306 of CWA if it were directly discharging those pollutants; and
 - (2) Any substantial change in the volume or character of pollutants being introduced into that POTW by a source introducing pollutants into the POTW at the time of issuance of the permit.
 - (3) For purposes of this paragraph, adequate notice shall include information on the quality and quantity of effluent introduced into the POTW, and any anticipated impact of the change on the quantity or quality of effluent to be discharged from the POTW [40 CFR § 122.42(b)].

12. Duty to Reapply [40 CFR § 122.41(b), § 122.21(d), § 122.6(a), and § 122.6(b)]

If the permittee wishes to continue an activity regulated by this permit after the expiration date of this permit, the permittee must apply for and obtain a new permit.

The application should be submitted at least 180 days before the expiration date of this permit.

The Director may grant permission to submit an application later than the 180 days in advance, but no later than the permit expiration date.

The conditions of an expired permit continue in force under 5 U.S.C. 558(c) until the effective date of a new permit if the permittee has submitted a timely application under this subsection which is a complete application for a new permit; and the Director, through no fault of the permittee, does not issue a new permit with an effective date on or before the expiration date of the previous permit.

Permits continued under this section remain fully effective and enforceable.

13. Signatory Requirements [40 CFR § 122.41(k)(1) and 40 CFR § 122.22]

All applications, reports, or information submitted to the Director shall be signed and certified.

a. Applications. All permit applications shall be signed as follows:

(1) For a corporation. By a responsible corporate officer. For the purpose of this section, a responsible corporate officer means:

- (a) A president, secretary, treasurer, or vice-president of the corporation in charge of a principal business function, or any other person who performs similar policy- or decision-making functions for the corporation, or
- (b) The manager of one or more manufacturing, production, or operating facilities, provided the manager is authorized to make management decisions which govern the operation of the regulated facility including having the explicit or implicit duty of making major capital investment recommendations, and initiating and directing other comprehensive measures to assure long term environmental compliance with environmental laws and regulations; the manager can ensure that the necessary systems are established or actions taken to gather complete and accurate information for permit application requirements; and where authority to sign documents has been assigned or delegated to the manager in accordance with corporate procedures.

NOTE: EPA does not require specific assignments or delegations of authority to responsible corporate officers identified in this subparagraph. The Agency will presume that these responsible corporate officers have the requisite authority to sign permit applications unless the corporation has notified the Director to the contrary. Corporate procedures governing authority to sign permit applications may provide for assignment or delegation to applicable corporate positions under this subparagraph rather than to specific individuals.

(2) For a partnership or sole proprietorship. By a general partner or the proprietor, respectively; or

(3) For a municipality, State, Federal, or other public agency. By either a principal executive officer or ranking elected official. For purposes of this section, a principal executive officer of a Federal agency includes:

- (a) the chief executive officer of the agency, or

- (b) a senior executive officer having responsibility for the overall operations of a principal geographic unit of the agency (e.g., Regional Administrators of EPA).
- b. All reports required by permits, and other information requested by the Director shall be signed by a person described in Paragraph a. of this section, or by a duly authorized representative of that person. A person is a duly authorized representative only if:
 - (1) The authorization is made in writing by a person described in Paragraph a. of this section;
 - (2) The authorization specifies either an individual or a position having responsibility for the overall operation of the regulated facility or activity such as the position of plant manager, operator of a well or a well field, superintendent, position of equivalent responsibility, or an individual or position having overall responsibility for environmental matters for the company.
 - (3) The written authorization is submitted to the Director.
- c. Changes to Authorization. If an authorization under Paragraph b. of this section is no longer accurate because a different individual or position has responsibility for the overall operation of the facility, a new authorization satisfying the requirements of Paragraph b. of this section must be submitted to the Director prior to or together with any reports, information, or applications to be signed by an authorized representative.
- d. Certification. Any person signing a document under Paragraph a. or b. of this section shall make the following certification:

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

14. Availability of Reports and the Administrative Record [40 CFR §§ 124.18 & 122]

Except for data determined to be confidential under 40 CFR Part 2, all reports prepared in accordance with the terms of this permit shall be available for public inspection at the offices of the EPA. As required by the Act, permit applications, permits and effluent data shall not be considered confidential.

15. Penalties for Falsification of Reports [40 CFR § 122.41(k)(2)]

The CWA provides that any person who knowingly makes any false statement, representation, or certification in any record or other document submitted or required to be maintained under this permit, including monitoring reports or reports of compliance or non-compliance shall, upon conviction, be punished by a fine of not more than \$10,000 per violation, or by imprisonment for not more than six (6) months per violation, or by both.

E. Definitions

1. The EPA [40 CFR § 122.2]

The Regional Administrator of EPA Region 4 or his/her designee is the “**The EPA**,” unless at some time in the future the State or Indian Tribe receives authority to administer the NPDES program and assumes jurisdiction over the permit at which time, the Director of the State or Tribal program receiving the authorization becomes the issuing authority.

The use of the term “Director” in this permit shall mean the EPA Region 4 Water Division Director, as the Regional Administrator’s designee.

2. Act [40 CFR § 124.2]

“**Act**” means the CWA (formerly referred to as the Federal Water Pollution Control Act or Federal Water Pollution Control Act Amendments of 1972) Public Law 92-500, as amended by Public Law 95-217, Public Law 95-576, Public Law 96-483, and Public Law 97-117, 33 U.S.C. 1251 et seq.

3. Discharge Monitoring Report (DMR) [40 CFR § 122.2]

“**Discharge Monitoring Report**” means the EPA national form (Form 3320-1) or electronic reporting form required by the federal regulations including any subsequent additions, revisions, or modifications for the reporting of self-monitoring results by permittees.

4. Measurements [40 CFR § 122.2]

The “**Daily discharge**” means the “discharge of a pollutant” measured during a calendar day or any 24-hour period that reasonably represents the calendar day for purposes of sampling. For pollutants with limitations expressed in units of mass, the “daily discharge” is calculated as the total mass of the pollutant discharged over the day. For pollutants with limitations expressed in other units of measurement (i.e., concentration), the “daily discharge” is calculated as the average measurement of the pollutant over the day.

The “**average annual discharge limitation**” means the highest allowable average of “daily discharges” over a period of twelve consecutive calendar months, calculated as the “arithmetic mean” of the monthly averages for the current calendar month and the eleven prior calendar months. The annual average is calculated each month. This limitation is identified as “Annual Average” in Part I of the permit.

The “**average monthly discharge limitation**” other than for bacterial indicators, means the highest allowable average of “daily discharges” over a calendar month, calculated as the sum of all “daily discharges” measured during a calendar month divided by the number of “daily discharges” measured during that month. For bacterial indicators, the “average monthly discharge limitation” is calculated using a “geometric mean.” This limitation is identified as “Monthly Average” or “Daily Average” in Part I of the permit.

The “**average weekly discharge limitation**” means the highest allowable average of “daily discharges” over a calendar week, calculated as the sum of all “daily discharges” measured during a calendar week divided by the number of “daily discharges” measured during that week.

This limitation is identified as “Weekly Average” in Part I of the permit.

The “**maximum daily discharge limitation**” means the highest allowable “daily discharge.” This limitation is identified as “Daily Maximum” in Part I of the permit.

The “**Method Detection Limit (MDL)**” means the minimum concentration of a substance (analyte) that can be measured and reported with 99 percent confidence that the analyte concentration is greater than zero and is determined from analysis of a sample in a given matrix containing the analyte.

The “**Minimum Level (ML)**” means the concentration at which the entire analytical system must give a recognizable signal and an acceptable calibration point. The ML is the concentration in a sample that is equivalent to the concentration of the lowest calibration standard analyzed by a specific analytical procedure, assuming that all the method-specified sample weights, volumes and processing steps have been followed.

5. Types of Samples

- a. Composite Sample: A “**composite sample**” is a combination of not less than eight influent or effluent portions (aliquots), of at least 100 ml, collected over the full time period specified in Part I of the permit. The composite sample must be flow proportioned by either a time interval between each aliquot, or by volume as it relates to effluent flow at the time of sampling, or by total flow since collection of the previous aliquot. Aliquots may be collected manually or automatically.
- b. Grab Sample: A “**grab sample**” is a single influent or effluent portion which is not a composite sample. The sample(s) shall be collected at the period(s) most representative of the total discharge.

6. Calculation of Means

- a. Arithmetic Mean: The “**arithmetic mean**” of any set of values is the sum of the individual values divided by the number of individual values.
- b. Geometric Mean: The “**geometric mean**” of any set of values is the N^{th} root of the product of the individual values where N is equal to the number of individual values. The geometric mean is equivalent to the antilog of the arithmetic mean of the logarithms of the individual values. For purposes of calculating the geometric mean, values of zero (0) shall be considered to be one (1).

7. Permittee [40 CFR § 122.21(b)]

The “**Permittee**” means the operator who has substantial control over the day-to-day operations of the facility; when a facility or activity is owned by one person but is operated by another person, it is the operator’s duty to obtain a permit.

8. Hazardous Substance [40 CFR § 122.2]

A “**hazardous substance**” means any substance designated under 40 CFR Part 116 pursuant to

Section 311 of the CWA.

9. Toxic Pollutants [40 CFR § 122.2]

A “**toxic pollutant**” is any pollutant listed as toxic under Section 307(a)(1) of the CWA or, in the case of “Sewage sludge use or disposal practices,” any pollutant identified in regulations implementing Section 405(d) of the CWA.

PART IV – WHOLE EFFLUENT TOXICITY TESTING

As required by Part I of this permit, the permittee shall initiate the series of tests described below beginning 90 days after effective date to evaluate the chronic whole effluent toxicity of the discharge from outfall 001. All test species, procedures, and quality assurance criteria used shall be in accordance with Short-term Methods for Estimating the Chronic Toxicity of Effluents and Receiving Waters to Freshwater Organisms, EPA-821-R-02-013 (October 2002) or the most current edition, as appropriate. The control and dilution water will be moderately hard water as described in EPA-821-R-02-013, Section 7, or the most current edition. A standard reference toxicant quality assurance chronic toxicity test shall be conducted concurrently with each species used in the toxicity test and the results submitted with the discharge monitoring report (DMR) with the results from the lab. Alternatively, if monthly QA/QC reference toxicant tests are conducted, these results must be submitted with the DMR Form.

A. Procedure

1. The permittee shall conduct multi-concentration daphnid, Ceriodaphnia dubia, Survival and Reproduction test and a fathead minnow, Pimephales promelas, Larval Survival and Growth Tests. All tests shall be conducted using a control (0% effluent) and the following dilution concentrations: 100%, 75%, 50%, 25%, and 12.5%. Unacceptable chronic toxicity will be demonstrated if either test results in an inhibition concentration causing 25% reduction in survival, reproduction, and/or growth (IC₂₅) of the test organisms (IC₂₅) in less than or equal to 100 % effluent. The IC₂₅ shall be determined based on a 25% reduction as compared to the controls, and as derived from linear interpolation. The average reproduction and growth responses will be determined based on the number of Ceriodaphnia dubia and Pimephales promelas larvae, as appropriate, used to initiate the test.
2. For each set of tests conducted, a minimum of three different 24 hr. composite sample of final effluent shall be collected and used per the sampling schedule discussed in EPA-821-R-02-013, Section 8.3.2, or the most current edition. All test solutions shall be renewed daily.
3. Each chronic test must meet the test acceptability criteria for each species as defined in EPA-821-R-02-013, Section 13.11 and Section 11.11, respectively, or the most current edition, or else the test shall be repeated. Additionally, all test results must be evaluated and reported for concentration-response relationship based on “Method Guidance and Recommendations for Whole Effluent Toxicity (WET) Testing (40 C.F.R. Part 136)”, EPA/821/B-00/004 (2000), or the most current edition. If the required concentration-response review fails to yield a valid relationship per EPA/821/B-00/004 (or the most current edition), that test shall be repeated. Any test initiated but terminated prior to completion must be reported with a complete explanation for the termination. A chronic test will be considered valid only if the acceptability criteria referenced above are met.
4. If control mortality exceeds 20% for either species in any test, the test(s) for that species (including the control) shall be repeated. A test will be considered valid only if control mortality does not exceed 20 % for either species. If, in any separate test, 100% mortality occurs prior to the end of the test, and control mortality is less than 20% at that time, that test (including the control) shall be terminated with the conclusion that the sample demonstrates unacceptable chronic toxicity.

B. Monitoring

1. The toxicity tests specified above shall be conducted once every year for the duration of the permit. These tests are referred to as “routine” tests.
2. Results from all tests shall be reported according to EPA-821-R-02-013, Section 10, or the most current edition. All results shall also be separately recorded and submitted on the DMR in the following manner: If the monthly average IC_{25} of a test species is less than or equal 100% effluent, “ $\leq 100\%$ ” shall be entered on the DMR for that species. If the monthly average IC_{25} of a test species is equal to 100% effluent, “ $> 100\%$ ” shall be entered. All individual test results for a given month shall be submitted as an attachment to the DMR.

C. Test Failure

1. If unacceptable chronic toxicity (an IC_{25} less than or equal to 100% in either test) is found in a routine test, the permittee shall conduct two additional toxicity tests on the specie(s) indicating unacceptable toxicity. For each additional test, the sample collection requirements and test acceptability criteria specified in Section A.2 and A.3 above must be met for the test to be considered valid. The first test shall begin within two weeks of the end of the routine test and the second test shall be conducted two weeks later. If either or both of these tests are invalid, additional test(s) are to be conducted every two weeks until two consecutive valid tests are completed (e.g., if the first test is valid and the second test is not, the permittee shall continue to conduct tests until two tests are valid in a row). The additional tests will be used to determine if the toxicity found in the routine test is still present.
2. For routine tests with unacceptable chronic toxicity, additional daphnid (Ceriodaphnia dubia) Survival and Reproduction and/or fathead minnow (Pimephales promelas) Survival and Growth multi-concentration tests shall be conducted, as appropriate. The first valid additional test shall be conducted using a control (0% effluent) and a minimum of five dilutions: 100%, 50%, 25%, 12.5% and 6.25%. The dilution series may be modified in the second valid test to more accurately identify the toxicity, such that at least two dilutions above (not to exceed 100% effluent) and two dilutions below the receiving water concentration and a control (0% effluent) are run.
3. Results from additional tests, required due to unacceptable chronic toxicity in the routine test, must be reported on the DMR Form and submitted within 45 days of completion of the second additional, valid test.

MUNICIPAL FACILITY FACT SHEET

NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM PERMIT TO DISCHARGE TREATED WASTEWATER TO WATERS OF THE UNITED STATES

Permit No.: MS0053503 Last Updated: June 24, 2019

1. Summary of Permit Changes

- A. Addresses for submittal of Discharge Monitoring Reports (DMRs) and NPDES Application Forms have been updated in the Schedule of Submissions.
- B. Influent monitoring requirements have been added for CBOD₅. An 85% removal requirement for CBOD₅ has also been added. These changes are to ensure the facility is meeting technology-based secondary treatment requirements.
- C. Fecal coliform limits have been removed and replaced with e. coli limits. This change is consistent with changes that have been made to the State of Mississippi water quality standards.
- D. The monthly average, weekly average, and daily maximum dynamic copper limits have been removed and replaced with static monthly average and daily maximum copper limits. These changes do not cause the limits to become less stringent, nor do they result in an expanded discharge. The new limits provide the same level of protection of water quality in the receiving waterbody as the previous limits did. Therefore, these changes do not implicate anti-backsliding or anti-degradation requirements.
- E. The requirement to report daily maximum hardness has been removed and replaced with requirements to report daily minimum and monthly average hardness.
- F. The daily maximum requirements for total nitrogen and total phosphorous have been removed and replaced with monthly average and weekly average requirements. These changes were made to be consistent with other federally-issued Region 4 NPDES permits.
- G. Language in narrative “free froms” condition (I.A.4 in permit) was changed to be consistent with other federally-issued Region 4 NPDES permits.
- H. Sludge language was updated (I.B in permit) to be consistent with other federally-issued Region 4 NPDES permits.
- I. E-reporting language has been updated (II.A in permit) to be consistent with other federally-issued Region 4 NPDES permits. Note especially the new NetDMR webpage address in Part II.A.1.a.
- J. Whole effluent toxicity testing language has been updated (IV in permit). Note especially the changes in the required dilution series in Part IV.A.1 and Part IV.C.2.

2. Facility Information

- A. Name and Address of Permittee: Mississippi Band of Choctaw Indians
 Post Office Box 6366
 Choctaw, Mississippi 39350
- B. Facility Address: Pearl River Wastewater Treatment Facility
 168 James Billie Road
 Philadelphia, Mississippi 39350
- C. Type of Facility: Municipal Wastewater Treatment Plant
 Publicly-Owned Treatment Works (POTW)
 Standard Industrial Classification Code: 4952
- D. Location and Description of the discharge (as reported by applicant):

Outfall	Latitude	Longitude	Receiving Waterbody	Watershed
001	32°47'20.21" N	89°11'51.19" W	Wolf Creek to Kentawka Canal to Pearl River	Upper Pearl Basin HUC 03180001

- E. Permitted Capacity: 1.5 MGD
- F. Description of Wastewater Treatment Facility:

Outfall	Operation Description	Treatment Description
001	Sanitary Wastewater	Treatment consists of physical treatment with influent screening, followed by biological treatment with aeration and clarification. Sludge is to pass through an aerobic digester and a belt press before disposal. Before discharge, the effluent undergoes UV disinfection and passes through a post-treatment aeration chamber. Facility anticipates undergoing upgrades and repairs during this permit cycle. The upgrades and repairs are not anticipated to include a change in the treatment process. Population served is approximately 17,750.

- G. Type of Wastewater Discharge:
- Process Wastewater Stormwater
 Domestic Wastewater Combined (describe)
 Other (describe)

H. Characterization of Effluent

Outfall No. 001 (Summary of DMR data from reports 7/31/2014-1/31/2019; See Appendix 2)

Effluent Characteristic	Minimum Reported Value	Average of Reported Monthly Average Values	Maximum Reported Value
Flow (MGD)	---	0.72	1.43
Carbonaceous Biochemical Oxygen Demand, 5-day (CBOD ₅), mg/l (lbs/day)	---	2.18 (13.39)	16.00 (99.60)
CBOD ₅ Percent Removal, %	*	*	---
Total Suspended Solids (TSS), mg/l (lbs/day)	---	11.30 (68.08)	107.00 (657.70)
TSS Percent Removal, %	68.20	89.09	---
Fecal Coliform Bacteria, Summer, #/100ml	---	279.13	59940
Fecal Coliform Bacteria, Winter, #/100ml	---	69.73	30808
pH	5.40	---	8.40
Total Ammonia as Nitrogen, mg/l (lbs/day)	---	0.49 (3.07)	4.80 (36.80)
Dissolved Oxygen (DO), mg/l	4.10	6.77	---
Total Nitrogen as Nitrogen, mg/l	---	3.22 ^a	13.98
Total Phosphorous as Phosphorous, mg/l	---	1.89 ^a	5.37
Total Recoverable Copper, µg/l	---	12.75 ^b	42.20 ^b
Total Hardness, mg/l of CaCO ₃	21.80 ^b	67.35 ^{ab}	98.00 ^b

^a Average of the reported Daily Maximum Values

^b Includes values reported on Part D of Application Form 2A from priority pollutant scans

*CBOD₅ percent removal reporting was not required during the previous permit cycle.

3. Water Quality Standards & Receiving Waterbody Information

A. Receiving Waterbody Classification and Information – The Mississippi Band of Choctaw Indians has not promulgated their own Water Quality Standards, therefore there are no Water Quality Standards applicable to the Tribal waters at this time. The State/Tribal Boundary is located downstream of the outfall within Wolf Creek prior to its confluence with Kentawka Canal. Kentawka Canal and Pearl River cross over the State/Tribal Boundary multiple times before finally ending up in the State of Mississippi. The EPA used Mississippi Water Quality Standards (part 6, chapter 2, Rule 2.4) to determine reasonable potential at the State/Tribal Boundary and for state waters. Wolf Creek, Kentawka Canal, and Pearl River have a designated use of Fish and Wildlife in the State of Mississippi. This permit is protective of designated uses of downstream state waters in the State of Mississippi.

B. Specific Water Quality Criteria for Classified Water Usage

The following are the most protective of criteria within the following applicable use classifications: Mississippi Fish and Wildlife use:

- i. pH: The normal pH of the waters shall be 6.0 to 9.0. The discharge of waters or wastewaters shall not cause the pH to vary more than 1.0 unit within this range, nor be less than 6.0, nor be greater than 9.0.
- ii. Water Temperature: The maximum water temperature increase above natural temperatures shall not exceed 5 °F (2.8 °C) in streams, lakes, and reservoirs nor shall the maximum water temperature exceed 90 °F (32.2 °C)
- iii. Specific Conductance: There shall be no substances added to increase the conductivity above 1000 microhms/cm for freshwater streams.
- iv. Dissolved Solids: There shall be no substances added to the waters to cause the dissolved solids to exceed 750 mg/l as a monthly average value, nor exceed 1500 mg/l at any time for freshwater streams.
- v. Ammonia (toxicity): Ammonia toxicity shall be evaluated according to EPA guidelines published in *1999 Update of Ambient Water Quality Criteria for Ammonia*; EPA document number EPA-822-R-99-014 or *Ambient Water Quality Criteria for Ammonia (Saltwater) – 1989*; EPA document number 440/5-88-004, and any subsequent amendments and additions.
- vi. Dissolved Oxygen: Dissolved oxygen concentrations shall be maintained at a daily average of no less than 5.0 mg/l with an instantaneous minimum of not less than 4.0 mg/l.
- vii. Bacteria: Culturable escherichia coli shall not exceed a geometric mean of 126 per 100 mL over a 30-day period, nor shall the samples examined during a 30-day period exceed 410 per 100 mL more than 10% of the time.
- viii. Toxicants
 - a. Narrative:
 1. Municipal wastes, industrial wastes, or other wastes shall receive effective treatment or control in accordance with Section 301, 306, and 307 of the Federal Clean Water Act. A degree of treatment greater than defined in these sections may be required when necessary to protect legitimate water uses.
 2. Aquatic Life Criteria: The concentration of toxic substances in State waters shall not result in chronic or acute toxicity or impairment of the uses of aquatic life. Toxicity concentrations in State waters in excess of these values shown in Table 2 will be assessed to determine chronic or acute toxicity, and/or the impairment of the uses of aquatic life. Chronic and/or acute toxicity will be determined in accordance with the *Water Quality Standards Handbook: Second*

Edition (EPA-823-B-94-005a, August 1994) and Technical Support Document for Water Quality-Based Toxics Control (EPA-505/2-90-001, March 1991). Regardless of the results of chronic or acute toxicity bioassay surveys, the concentrations of toxic substances shall not exceed the chronic or acute values, except as provided for in Rules 2.2.F.5(a) and 2.2.F.5(b) for establishing alternative criteria. Part 6: Chapter 2: Mississippi Commission on Environmental Quality Regulations for Water Quality Criteria For Intrastate, Interstate, And Coastal Waters: Table 2 (February 25, 2016)

3. Human Health Criteria: The concentration of toxic substances shall not exceed the level necessary to protect human health through exposure routes of fish (and shellfish) tissue consumption, water consumption, or other routes identified as appropriate for the water body.
- b. Numerics: Numeric criteria for all waters are established herein for certain toxic pollutants for which the EPA has published national criteria for the protection of aquatic life and human health pursuant to Section 304(a) of the Federal Clean Water Act in addition to chlorine and ammonia. The pollutants are listed in Table 2 and are expressed as the dissolved phase of the parameter. *Part 6: Chapter 2: Mississippi Commission on Environmental Quality Regulations for Water Quality Criteria For Intrastate, Interstate, And Coastal Waters: Table 2 (February 25, 2016)*
- ix. “Free-Froms”
- a. Waters shall be free from substances attributable to municipal, industrial, agricultural, or other discharges that will settle to form putrescent or otherwise objectionable sludge deposits.
 - b. Waters shall be free from floating debris, oil, scum, and other floating materials attributable to municipal, industrial, agricultural, or other discharges in amounts sufficient to be unsightly or deleterious.
 - c. Waters shall be free from materials attributable to municipal, industrial, agricultural, or other discharges producing color, odor, taste, total suspended or dissolved solids, sediment, turbidity, or other conditions in such degree as to create a nuisance, render the waters injurious to public health, recreation, or to aquatic life and wildlife, or adversely affect the palatability of fish, aesthetic quality, or impair the waters for any designated use. Except as prohibited in Rule 2.1.H. above, the turbidity outside the limits of a 750-foot mixing zone shall not exceed the background turbidity at the time of discharge by more than 50 Nephelometric Turbidity Units (NTU). Exemptions to the turbidity standard may be granted under the following circumstances:
 - (1) in cases of emergency to protect the public health and welfare
 - (2) for environmental restoration projects which will result in reasonable and temporary deviations and which have been reviewed and approved by the Department of Environmental Quality.

d. Waters shall be free from substances attributable to municipal, industrial, agricultural, or other discharges in concentrations or combinations that are toxic or harmful to humans, animals, or aquatic life.

C. Critical Flows – Due to the lack of flow gage data in the receiving waterbody, conservative assumptions were made regarding critical flows as follows:

Wolf Creek: 7Q10 = 0 cfs

D. 303(d) Status – Wolf Creek, Kentawka Canal, and Pearl River have not been assessed for water quality by the Mississippi Band of Choctaw Indians, nor are they listed as impaired on the State of Mississippi 2018 303(d) List.

E. Total Maximum Daily Loads – TMDLs exist in the Pearl River for mercury, nutrients, sediment, DDT, and toxaphene, but none list Pearl River WWTF as a point source. Pearl River WWTF effluent is not an expected source of DDT, toxaphene, or mercury, nor is it expected to cause or contribute to a sediment impairment. MDEQ approved the *TMDL for Total Nitrogen and Total Phosphorus For the Pearl River* in 2009. Discharges from Tribal lands, including from the Pearl River WWTF, were not included in the TMDL as a source of total nitrogen or total phosphorus. This permit includes total nitrogen and total phosphorus monitoring requirements.

4. Effluent Limits and Permit Conditions

A. Proposed Effluent Limitations

PARAMETERS	DISCHARGE LIMITATIONS				MONITORING REQUIREMENTS		
	Daily Min	Monthly Avg	Weekly Avg	Daily Max	Sampling Location	Measurement Frequency	Sample Type
Flow, MGD	---	Report	Report	---	Effluent	Continuous	Recorder
Dissolved Oxygen (DO), mg/l	6.0	---	---	---	Effluent	1/Week	Grab
Carbonaceous Biochemical Oxygen Demand 5-Day (CBOD ₅), mg/l (lbs/day)	---	Report 10.0 (34.2)	---	---	Influent Effluent	1/Week	24-hour Composite 24-hour Composite

PARAMETERS	DISCHARGE LIMITATIONS				MONITORING REQUIREMENTS		
	Daily Min	Monthly Avg	Weekly Avg	Daily Max	Sampling Location	Measurement Frequency	Sample Type
Carbonaceous Biochemical Oxygen Demand 5-Day (CBOD ₅) Percent Removal, %	85% ^a				Influent/Effluent	1/Month	Calculated
Total Suspended Solids (TSS), mg/l (lbs/day)	---	Report 30.0 (375)	--- 45.0 (563)	---	Influent Effluent	1/Week	24-hour Composite 24-Hour Composite
Total Suspended Solids (TSS) Percent Removal, %	85% ^a				Influent/Effluent	1/Month	Calculated
Total Ammonia as Nitrogen, mg/l (lbs/day)	---	2.0 (25.0)	3.0 (37.5)	---	Effluent	1/Week	24-hour Composite
pH, standard units (SU)	6.5	---	---	9.0	Effluent	1/Week	Grab
E. coli, #/100 ml		126 ^b	---	410	Effluent	1/Week	Grab
Total Recoverable Copper, µg/l	---	18.76	---	27.19	Effluent	1/Month	Grab
Total Hardness as CaCO ₃ , mg/l	Report	Report	---	---	Effluent	1/Month See I.A.8 in Permit	Grab
Total Nitrogen (TN) as Nitrogen, mg/l	---	Report	Report	---	Effluent	Quarterly	Grab
Total Phosphorus, (TP) as Phosphorous, mg/l	---	Report	Report	---	Effluent	Quarterly	Grab
Chronic Whole Effluent Toxicity, IC ₂₅	See I.A.7				Effluent	See Part IV in Permit	
In-stream monitoring	---	---	---	---	Upstream/ downstream	See I.A.9 and I.A.10 in Permit	Grab

^a Each month, the average of the monthly average effluent CBOD₅ and TSS concentrations

shall not exceed 15% of the average of their respective influent concentration values (85% removal). The percent removal shall be reported on the Discharge Monitoring Report (DMR) form (EPA No. 3320-1).

^b The geometric mean of the e. coli values collected during any monthly period shall not exceed 126 colonies per 100 ml of effluent sample and shall be reported as the monthly average value on the DMR Form.

B. Reasonable Potential Analysis (RPA)

Title 40 of the Federal Code of Regulations, 40 CFR 122.44(d) requires NPDES permit issuing authorities to develop procedures for determining whether a discharge causes, has the reasonable potential to cause, or contributes to an instream excursion above a narrative or numeric criterion. If such reasonable potential is determined to exist, the NPDES permit must contain pollutant effluent limits and/or effluent limits for whole effluent toxicity. EPA's reasonable potential analysis is based on guidelines provided in "U.S. EPA NPDES Permit Writer's Manual (2010)" and its references. Reasonable potential analysis was performed using data reported on Part D of Application Form 2A and facility DMR data from July 31, 2014 thru January 1, 2019. All Part D pollutants were found to be below detection except for copper, mercury, and zinc. The results of the reasonable potential analysis indicated the need for copper limits in the permit. Consequently, monthly average and daily maximum copper limits have been included in the permit. Reasonable potential was not found for mercury or zinc, and no permit requirements have been added for these parameters. Additional information on the process and results of the reasonable potential analysis can be found in Appendix 3.

C. Whole Effluent Toxicity (WET)

The chronic WET test measures the effect of wastewater on an indicator organism's growth, reproduction and survival. The two species of indicator organisms designated in this permit are *Ceriodaphnia dubia* and *Pimephales promelas*. The effects of an effluent in chronic toxicity tests are estimated based on the statistical calculation of the effluent concentration which causes a 25% reduction in growth or reproduction of test organisms. This inhibition concentration, denoted as IC₂₅, is then compared to the instream waste concentration (IWC), which is the proportion of effluent in the receiving water, to determine if toxicity has occurred at a level of concern. If the IC₂₅ is lower than the IWC, the effluent has the potential to inhibit aquatic organisms in the receiving water. WET testing also requires a measure of test sensitivity known as Percent Minimum Significant Difference (PMSD). See the table below from Section 10.2.8.3 of Short-term Methods for Estimating the Chronic Toxicity of Effluents and Receiving Waters to Freshwater Organisms, 4th Edition, EPA 821-R-02-013, 2002 for PMSD variability criteria.

TABLE 6. VARIABILITY CRITERIA (UPPER AND LOWER PMSD BOUNDS) FOR SUBLETHAL HYPOTHESIS TESTING ENDPOINTS SUBMITTED UNDER NPDES PERMITS.¹

Test Method	Endpoint	Lower PMSD Bound	Upper PMSD Bound
Method 1000.0, Fathead Minnow Larval Survival and Growth Test	growth	12	30
Method 1002.0, <i>Ceriodaphnia dubia</i> Survival and Reproduction Test	reproduction	13	47
Method 1003.0, <i>Selenastrum capricornutum</i> Growth Test	growth	9.1	29

¹ Lower and upper PMSD bounds were determined from the 10th and 90th percentile, respectively, of PMSD data from EPA's WET Interlaboratory Variability Study (USEPA, 2001a; USEPA, 2001b).

The permittee submitted the results of four individual multi-species annual chronic WET tests with the permit renewal application. Two of the tests were performed on July 15, 2014 and July 24, 2014 as follow-up tests to the June 24, 2014, which showed chronic toxicity in the effluent for *Pimephales promelas* (Fathead minnow). The June 24, 2014 test was performed prior to the issuance of the previous permit, but the follow-up tests were performed during the previous permit cycle. The facility passed both of the follow-up tests. A third test was performed on October 16, 2017, and a fourth test on May 4, 2018. The facility passed both of these tests for both species. The facility did not submit test results in 2016 or 2017.

Due to the facility's classification as a major, and because of the facility's reasonable potential to cause or contribute to a violation of the State of Mississippi's copper water quality criteria downstream, this facility has reasonable potential to create a condition of toxicity. Therefore, a chronic WET limit has been deemed necessary. A chronic WET limit where an inhibition concentration (IC₂₅) of less than 100% will constitute a violation has been included in the permit, along with a requirement for annual testing for two species, *Ceriodaphnia dubia* and *Pimephales promelas*. These requirements are as stringent as the requirements in the previous permit and are protective of the State of Mississippi's water quality standards downstream of the outfall.

D. Basis for Conventional Pollutants Limits

Pollutant of Concern	Basis
pH	Effluent pH limits in the permit include a daily minimum of 6.5 S.U. and a daily maximum of 9.0 S.U. These limits are unchanged from the previous permit. They are more stringent than the minimum level of effluent quality requirements of 40 CFR § 133.102 for discharges of wastewater from POTWs and are protective of the State of Mississippi downstream water quality standards for pH.
5-Day Carbonaceous Biochemical Oxygen Demand (CBOD ₅)	Effluent CBOD ₅ limits in the permit include a monthly average concentration of 10.0 mg/l and a weekly average concentration of 15.0 mg/l. Effluent CBOD ₅ loading limits of 34.2 lbs/day monthly average and 51.3 lbs/day weekly average are also included in this permit. These limits are unchanged from the previous permit and are protective of the State of Mississippi downstream water quality standard for dissolved oxygen based on QUAL-2E model results (See Appendix 1).

	<p>These limits are more stringent than minimum level of effluent quality requirements of 40 CFR § 133.102 for discharges of wastewater from POTWs. Loading limits were capped in a previous permit based on an effluent flow of 0.41 MGD in order to ensure no increases in loadings to the receiving waterbody.</p> <p>An 85% removal limitation for CBOD₅ has been added to the permit based on minimum level of effluent quality requirements of 40 CFR § 133.102 for discharges of wastewater from POTWs. An influent CBOD₅ monitoring requirement has also been added to the permit.</p>
Total Suspended Solids (TSS)	<p>The effluent limitations for TSS are based on minimum level of effluent quality requirements of 40 CFR § 133.102 for discharges of wastewater from POTWs. The permit includes monthly average limits of 30 mg/l and 375 lbs/day and weekly average limits of 45 mg/l and 563 lbs/day, as well as an 85% removal limitation and influent monitoring. All TSS limits and monitoring requirements are unchanged from the previous permit.</p>
E. coli	<p>The effluent limitations have been changed to E. coli from Fecal Coliform to maintain consistency with Mississippi's Water Quality Standards at the State/Tribal Boundary and state waters. The limits include a monthly geometric mean of 126 #/100 mL and a daily maximum of 410 #/100 mL. Monitoring requirements are consistent with the previous NPDES permit and the anti-backsliding provisions of 40 CFR § 122.44(l).</p>

E. Basis for Nonconventional Pollutants Limits

Pollutant of Concern	Basis
Ammonia	<p>The permit includes monthly average ammonia limits of 2.0 mg/l and 25.0 lbs/day and weekly average ammonia limits of 3.0 mg/l and 37.5 lbs/day. These limits are unchanged from the previous permit and are protective of the State of Mississippi downstream water quality standard for dissolved oxygen based on QUAL-2E model results (See Appendix 1). MDEQ currently interprets their ammonia toxicity water quality standard for freshwater to be the EPA 1999 Update of Ambient Water Quality Criteria for Ammonia. The DO-based ammonia limits included in this permit are more stringent than the calculated toxicity-based ammonia limits and are therefore protective of the MDEQ toxicity-based ammonia water quality standard (EPA 1999 Update of Ambient Water Quality Criteria for Ammonia). See Appendix 4 for the ammonia toxicity analysis.</p>
Dissolved Oxygen (DO)	<p>The permit includes a daily minimum dissolved oxygen limit of 6.0 mg/l. This limit is unchanged from the previous permit and is protective of the State of Mississippi downstream water quality standard for dissolved oxygen based on QUAL-2E model results (See Appendix 1).</p>
Total Nitrogen	<p>Required monitoring for Total Nitrogen (NO₂ + NO₃-N + TKN) is being continued in this permit so that sufficient information will be available from this point source should it be necessary at some later time to impose limits on this discharge.</p>
Total Phosphorus	<p>Required monitoring for Total Phosphorus is being continued in this permit so that sufficient information will be available from this point source should it be necessary at some later time to impose limits on this discharge.</p>
Total Hardness as CaCO ₃	<p>Monthly monitoring for total hardness is required in conjunction with monitoring for total recoverable copper. Effluent hardness data will be used to characterize the effluent and develop copper limits.</p>
Chronic Whole Effluent Toxicity, IC ₂₅	<p>A chronic WET limit of IC₂₅ ≥ 100% has been included in the permit with a requirement for annual testing for two species, <i>Ceriodaphnia dubia</i> and <i>Pimephales promelas</i>. These requirements are as stringent as the requirements in the previous permit. For more information on the basis of this limit, see paragraph 4.C. above.</p>

F. Basis for Toxic Pollutants Limits

Pollutant of Concern	Basis
Copper, Total Recoverable	<p>The reasonable potential (RP) analysis (Appendix 3) for toxics identified total recoverable copper as a pollutant that could potentially cause or contribute to a violation of the State of Mississippi's downstream copper water quality criteria. The previous permit contained dynamic copper limits that were recalculated each month.</p> <p>Administrative Order on Consent: The Mississippi Band of Choctaw Indians were placed under an Administrative Order on Consent with the EPA to develop a site-specific metals translator for copper. The Mississippi Band of Choctaw Indians worked with the EPA to develop a partitioning coefficient translator and methodology to calculate site-specific total recoverable copper limits based on EPA's 1996 Metal Translator Guidance. The EPA reviewed and approved the methodology, and it was used to develop the static copper limits that have been included in this permit. The Mississippi Department of Environmental Quality was also consulted and agreed on the methodology. Additionally, water quality monitoring indicates that the effluent from the facility is not causing or contributing to an impairment of Mississippi state waters.</p> <p>These new static copper limits replace the prior dynamic copper limits from the previous permit. The methodology involves using calculations based on long-term average hardness (67.35 mg/l) and long-term average TSS (11.30 mg/l) values calculated from effluent data from the facility. In order to be conservatively protective of water quality, no dilution allowance was provided to the facility. The calculated copper limits included in this permit are 18.76 µg/l monthly average and 27.19 µg/l daily maximum. For more information on the calculations, see Appendix 5.</p>

G. Basis for Instream Monitoring Requirements

Instream monitoring requirements for dissolved oxygen, pH, temperature and conductivity upstream and downstream of the discharge have been continued in this permit to analyze the impact of the discharge on the receiving waterbody and ensure compliance with the State of Mississippi's dissolved oxygen water quality standard in Mississippi state waters downstream of the outfall. See Appendix 2 for reported instream data from the previous permit cycle.

H. Calculations for Water Quality-Based Effluent Limits (WQBELs)

i. Instream Waste Concentration (IWC)

$$IWC (\%) = \frac{\text{Design Flow (gpd)}}{\text{Design Flow (gpd)} + 7Q_{10}(\text{gpd})} \times 100\%$$

$$IWC (\%) = \frac{1,500,000 \text{ gpd}}{1,500,000 \text{ gpd} + 0 \text{ gpd}} \times 100\%$$

$$IWC (\%) = 100\% \text{ in Wolf Creek}$$

ii. Weekly Average Limits for CBOD₅, TSS, and DO-based NH₃-N

Weekly average limits were developed using the following equation:

$$\text{Weekly average limit} = \text{Monthly average limit} \times 1.5$$

iii. Loading Limits for TSS and DO-based NH₃-N

Loading limits were developed using the following equation:

$$\text{Loading limit (lbs/day)} = \text{Concentration limit (mg/l)} \times \text{Design flow (MGD)} \times 8.34$$

I. Applicable Technology-Based Effluent Limits (TBELs)

Technology-based effluent limitations aim to prevent pollution by requiring a minimum level of effluent quality that is attainable using demonstrated technologies for reducing discharges of pollutants or pollution into the waters of the United States.

i. Secondary Treatment Standards

Parameter	Secondary Treatment Standard
BOD ₅ (CBOD ₅)	30 mg/l (25 mg/l) Monthly Average 45 mg/l (37.5 mg/l) Weekly Average
TSS	30 mg/l Monthly Average 45 mg/l Weekly Average
Removal	85% BOD ₅ (or CBOD ₅) and TSS
pH	Maintained within the limits of 6.0-9.0 standard units

J. Comparison & Summary of Water Quality-Based vs. Technology-Based Effluent Limits

For each parameter, applicable technology-based limits (TBELs) were compared to the applicable water-quality based limits (WQBELs), and the most stringent limits were selected for the permit. The selected limits, which are indicated by bold text, were compared to the limits in the current permit, and all are at least as stringent as the current permit limits.

Parameter	Current Permit Limits				Proposed Permit Limits							
					WQBELs				TBELs			
	Daily Min	Monthly Avg	Weekly Avg	Daily Max	Daily Min	Monthly Avg	Weekly Avg	Daily Max	Daily Min	Monthly Avg	Weekly Avg	Daily Max
Flow, MGD	---	Report	Report	---	---	Report	Report	---	---	---	---	---
Dissolved Oxygen, mg/l	6.0	---		---	6.0	---		---	---			
CBOD ₅ , mg/l (lb/d)	---	10.0 (34.2)	15.0 (51.3)	---	---	10.0 (34.2)	15.0 (51.3)	---	---	25	37.5	---
CBOD ₅ % Removal	---				---				---	85%	---	---
TSS, mg/l (lb/d)	---	30.0 (375)	45.0 (563)	---	---				---	30.0 (375)	45.0 (563)	---
TSS % Removal	85%				---				85%			
Total Ammonia as Nitrogen, mg/l (lb/d)	---	2.0 (25.0)	3.0 (37.5)	---	---	2.0 (25.0)	3.0 (37.5)	---	---			
pH, S.U.	6.5	---		9.0	6.5	---		9.0	6.0	---		9.0
Fecal Coliform, Summer, #/100 ml	---	200	400	---	---	---	---	---	---			
Fecal Coliform, Winter, #/100 ml	---	2000	4000	---	---	---	---	---	---			
E. coli, #/100 ml	---	---	---	---	---	126	---	410	---			
Total Recoverable Copper, µg/l	---	Equation-dependent			---	18.76	---	27.19	---			
Total Hardness as CaCO ₃ , mg/l	---	---	---	Report	Report	Report	---	---	---			
TN, mg/l	---	---	---	Report	---	Report	Report	---	---			
TP, mg/l	---	---	---	Report	---	Report	Report	---	---			
Chronic WET	IC ₂₅ > 100%				IC ₂₅ > 100%				---			
Instream Monitoring	Upstream/Downstream DO, pH, temperature, conductivity				Upstream/Downstream DO, pH, temperature, conductivity				---			

5. 401 Certification

The Clean Water Act (CWA) § 401 statute and regulations stipulate that no federal permit or license can be issued that may result in a discharge to waters of the United States unless the state or authorized tribe certifies that the discharge is consistent with water quality standards and other water quality goals or waives its certification authority. EPA Regional offices are directed to certify on behalf of tribes without CWA § 401 program authority.

The CWA § 401 regulations direct certifying agencies to conclude that the permitted activity will be consistent with effluent limitations for conventional and non-conventional pollutants, water quality standards, new source performance standards, and toxic pollutant limitations, and any other appropriate state and/or tribal requirements. A second component of the scope of the CWA § 401 review is determining whether an activity requiring certification in one state or tribe (i.e., in the location where the discharge originates) may potentially impact the water quality of a neighboring state or tribe. In those instances, the EPA is directed to notify the state or tribe whose water quality may be affected, and other review processes may be triggered.

The Tribal Band of Choctaw has not promulgated water quality standards, and discharges from the Pearl River WWTF will occur just upstream of the Mississippi state boundary. The subject permit was developed to be consistent with the State of Mississippi's Water Quality Standards (part 6, chapter 2, Rule 2.4). It is protective of designated uses of state waters and with the other applicable provisions of the CWA (i.e., §§ 301, 302, 303, 306, and 307).

6. Services Consultation

In accordance with 40 CFR § 122.49(c) the EPA is required to ensure, in consultation with the U.S. Fish and Wildlife Service (Service), that “any action authorized by EPA is not likely to jeopardize the continued existence of any endangered or threatened species or adversely affect its critical habitat”. In a letter dated April 15, 2019, the Service concurred with the EPA determination that the proposed project “May affect, but [is] not likely to adversely affect” federally listed species or critical habitat.

7. Public Participation

The public notice for this draft permit will be published in the Neshoba Democrat with the permit documents available on the EPA Region 4 website. The public comment period will be open for 30 days after publication of the public notice. A response to comment document will be drafted and included with the final permit should any significant comments be received.

DATE: June 24, 2019

AMENDMENT TO THE FACT SHEET AT THE TIME OF ISSUANCE

PERMIT NO: MS0053503

NAME OF APPLICANT: Pearl River Wastewater Treatment Facility

A. Public Comments

In accordance with 40 CFR § 124.10(d)(1) the Public Notice announcing the proposed reissuance of EPA Region 4's Individual NPDES Permit for Pearl River Wastewater Treatment Facility, No. MS0053503, was published in the Neshoba Democrat on May 22, 2019. The comment period was open for 30 days until June 21, 2019. EPA Region 4 received no comments during this time.

Appendix 1

Model Selection:

A QUAL-2E Stream Quality Routing Model (Version 3.14) was parameterized to evaluate fate and transport of oxygen-demanding substances from the discharger into downstream receiving waters. The model was developed in order to determine WQBELs that would meet Mississippi Water Quality Standards protective of dissolved oxygen to maintain aquatic life as the effluent enters Mississippi waters. A model was run in 2002, and the permit issued in 2003 contained CBOD₅, ammonia as nitrogen, and dissolved oxygen WQBELs that were based on the modeling results and BPJ. The model was evaluated, and the limits were determined to still be protective of Mississippi Water Quality Standards in 2008. A WASP model was developed in 2012 and 2019 to verify that the assumptions and limits from the 2002 model are still protective.

The model and limits were reevaluated in March 2019 in light of information provided by the applicant on the application received December 2018 regarding the design flow, treatment process, and outfall location. There have been no major changes to the facility design since the model was previously evaluated in 2012. An inspection of the receiving waterbody and downstream waterbodies was performed using mapping tools, and it was determined that the model uses a conservative approach in its representation of the receiving waterbody and in the setting of parameters for the exertion of oxygen-demanding substances. Additionally, instream data reported by the facility during the previous permit cycle did not indicate an exceedance of the State of Mississippi's instream dissolved oxygen water quality standard (i.e. for instream dissolved oxygen, no daily average data points fell below 5 mg/l, and no daily minimum data points fell below 4 mg/l). Therefore, the model and limits were determined to still be protective of the State of Mississippi's water quality standards at the State/Tribal boundary. As such, the CBOD₅, ammonia as nitrogen, and dissolved oxygen limits that were in the previous permit are being carried over into this permit. The WASP modeling files are available upon request.

Appendix 2 – Summary of DMR Data

Effluent Flow

Monitoring Period End Date	Monthly Avg, MGD	Weekly Avg, MGD
07/31/2014	0.90	0.97
08/31/2014	0.86	0.95
09/30/2014	0.60	0.66
10/31/2014	0.66	0.76
11/30/2014	0.62	0.68
12/31/2014	0.62	0.66
01/31/2015	0.60	0.71
02/28/2015	0.60	0.75
03/31/2015	0.64	0.68
04/30/2015	0.57	0.64
05/31/2015	0.67	0.77
06/30/2015	0.71	0.71
07/31/2015	0.79	0.82
08/31/2015	0.70	0.76
09/30/2015	0.65	0.69
10/31/2015	0.62	0.65
11/30/2015	0.65	0.70
12/31/2015	0.60	0.65
01/31/2016	0.65	0.79
02/29/2016	0.69	0.75
03/31/2016	0.74	1.02
04/30/2016	*	*
05/31/2016	*	*
06/30/2016	0.78	0.83
07/31/2016	0.82	0.86
08/31/2016	*	*
09/30/2016	0.68	0.75
10/31/2016	*	*
11/30/2016	0.56	0.62
12/31/2016	0.60	0.63
01/31/2017	0.64	0.69
02/28/2017	0.50	0.56
03/31/2017	0.54	0.58
04/30/2017	0.57	0.73
05/31/2017	0.65	0.92
06/30/2017	0.67	0.81
07/31/2017	0.85	0.92
08/31/2017	0.79	0.82
09/30/2017	0.76	0.82
10/31/2017	0.70	0.73

11/30/2017	0.66	0.76
12/31/2017	0.63	0.71
01/31/2018	0.68	0.83
02/28/2018	0.82	0.93
03/31/2018	0.81	0.84
04/30/2018	0.91	0.99
05/31/2018	0.81	0.88
06/30/2018	0.85	0.87
07/31/2018	0.89	0.91
08/31/2018	0.86	0.87
09/30/2018	0.90	0.92
10/31/2018	0.84	0.88
11/30/2018	0.89	0.99
12/31/2018	1.08	1.43
01/31/2019	1.00	1.17

Data Points, n	51	51
Average	0.72	0.80
Maximum		1.43

* Data unavailable

Effluent CBOD₅

Monitoring Period End Date	Monthly Avg, mg/l	Monthly Avg, lb/d	Weekly Avg, mg/l	Weekly Avg, lb/d
07/31/2014	2.80	21.10	4.00	32.30
08/31/2014	2.00	14.30	3.00	23.70
09/30/2014	2.00	9.90	3.00	16.60
10/31/2014	1.80	9.70	2.00	12.70
11/30/2014	1.80	9.00	3.00	17.00
12/31/2014	1.80	9.10	4.00	22.00
01/31/2015	3.00	16.00	9.00	53.10
02/28/2015	5.30	26.40	16.00	99.60
03/31/2015	1.80	9.30	3.00	17.10
04/30/2015	2.20	10.40	3.00	16.00
05/31/2015	2.30	12.60	3.00	19.20
06/30/2015	1.50	8.90	2.00	11.90
07/31/2015	2.30	14.80	3.00	20.50
08/31/2015	2.80	16.00	4.00	25.30
09/30/2015	3.00	16.20	4.00	23.10
10/31/2015	2.60	13.40	4.00	21.60
11/30/2015	4.00	21.60	8.00	46.50
12/31/2015	3.40	17.00	9.00	48.70
01/31/2016	2.00	9.50	2.00	13.10
02/29/2016	2.00	13.00	3.00	18.70
03/31/2016	3.30	20.10	5.00	42.70
04/30/2016	*	*	*	*
05/31/2016	*	*	*	*
06/30/2016	1.80	11.10	2.00	13.80
07/31/2016	1.80	12.00	2.00	14.10
08/31/2016	*	*	*	*
09/30/2016	1.20	5.30	2.00	5.40
10/31/2016	*	*	*	*
11/30/2016	1.30	5.80	2.00	8.90
12/31/2016	1.50	7.90	2.00	9.50
01/31/2017	2.00	10.20	3.00	15.60
02/28/2017	2.00	8.40	2.00	9.30
03/31/2017	1.60	7.80	2.00	10.40
04/30/2017	1.30	6.60	2.00	9.90
05/31/2017	1.30	4.40	2.00	8.40
06/30/2017	1.30	9.20	2.00	15.40
07/31/2017	3.30	24.80	4.00	28.60
08/31/2017	2.80	22.70	4.00	30.60
09/30/2017	3.30	21.10	7.00	43.00
10/31/2017	1.00	5.80	1.00	6.50
11/30/2017	1.20	7.60	2.00	12.00
12/31/2017	1.50	8.70	2.00	11.50
01/31/2018	1.80	8.50	2.00	10.20
02/28/2018	2.50	22.30	6.00	45.80
03/31/2018	2.40	18.10	3.00	20.60
04/30/2018	2.50	19.50	3.00	28.80
05/31/2018	2.60	17.20	4.00	28.10
06/30/2018	4.30	32.00	9.00	68.50
07/31/2018	1.80	12.70	2.00	15.10
08/31/2018	1.80	12.20	2.00	15.10
09/30/2018	1.00	8.00	1.00	8.50
10/31/2018	1.60	13.20	3.00	27.60
11/30/2018	1.00	7.90	1.00	9.20

12/31/2018	1.50	11.90	2.00	17.10
01/31/2019	2.40	21.80	5.00	36.40

Data Points, n	51	51	51	51
Average	2.18	13.39	3.59	23.24
Maximum			16.00	99.60

* Data unavailable

TSS

Monitoring Period End Date	Influent Monthly Avg, mg/l	Effluent Monthly Avg, mg/l	Effluent Monthly Avg, lb/d	Effluent Weekly Avg, mg/l	Effluent Weekly Avg, lb/d	Monthly Avg Min, % removal
07/31/2014	124.00	17.00	128.20	22.00	177.90	86.00
08/31/2014	142.50	19.00	135.80	22.00	173.50	87.00
09/30/2014	142.50	16.00	79.60	18.00	99.70	89.00
10/31/2014	142.50	15.80	87.00	16.00	102.00	89.00
11/30/2014	130.50	16.50	85.20	20.00	113.60	87.00
12/31/2014	137.50	15.80	81.50	18.00	98.90	89.00
01/31/2015	140.00	18.40	91.80	24.00	141.50	87.00
02/28/2015	118.50	16.00	80.50	17.00	105.80	86.00
03/31/2015	167.50	15.30	80.70	17.00	97.00	91.00
04/30/2015	146.00	19.00	90.00	26.00	138.30	87.00
05/31/2015	157.50	19.50	109.50	22.00	140.60	88.00
06/30/2015	142.50	17.50	103.30	18.00	106.90	88.00
07/31/2015	136.00	18.20	119.30	20.00	136.50	87.00
08/31/2015	145.00	16.80	97.20	19.00	120.00	88.00
09/30/2015	129.00	12.50	67.30	17.00	98.30	90.00
10/31/2015	113.80	12.40	63.80	16.00	86.50	89.00
11/30/2015	132.50	16.30	87.70	19.00	111.00	88.00
12/31/2015	82.80	12.20	60.90	25.00	135.10	85.00
01/31/2016	53.00	5.00	27.20	9.00	59.10	90.00
02/29/2016	95.00	5.50	31.70	8.00	49.90	94.00
03/31/2016	94.75	4.80	29.40	5.00	42.70	95.00
04/30/2016	*	*	*	*	*	*
05/31/2016	*	*	*	*	*	*
06/30/2016	101.60	4.80	30.70	6.00	41.80	95.10
07/31/2016	115.80	6.50	44.50	7.00	47.90	93.70
08/31/2016	*	*	*	*	*	*
09/30/2016	131.40	9.20	50.60	21.00	107.00	90.70
10/31/2016	*	*	*	*	*	*
11/30/2016	123.80	5.00	21.60	8.00	35.60	95.60
12/31/2016	115.00	12.25	58.90	19.00	91.70	88.60
01/31/2017	116.80	8.75	48.90	14.00	73.00	92.70
02/28/2017	137.50	19.50	86.70	42.00	171.60	83.20
03/31/2017	105.20	14.00	65.60	25.00	130.50	84.80
04/30/2017	88.80	8.75	47.00	10.00	57.50	90.10
05/31/2017	97.30	6.50	10.90	12.00	24.40	90.70
06/30/2017	90.80	15.00	99.60	44.00	209.20	81.70
07/31/2017	103.30	9.50	73.80	11.00	104.90	89.70
08/31/2017	89.80	12.75	111.80	24.00	183.70	85.80
09/30/2017	93.30	33.75	215.50	107.00	657.70	68.20
10/31/2017	83.80	5.50	33.00	6.00	39.20	93.20
11/30/2017	111.00	5.00	30.40	5.00	35.20	95.40
12/31/2017	91.80	5.50	32.30	7.00	40.20	94.00
01/31/2018	128.30	5.75	27.20	8.00	35.70	95.10
02/28/2018	108.80	7.00	88.90	13.00	198.50	92.40
03/31/2018	212.00	5.00	37.83	5.00	39.50	96.40
04/30/2018	103.00	5.00	38.30	5.00	48.10	95.10
05/31/2018	103.00	6.00	37.10	8.00	56.20	90.70
06/30/2018	92.00	7.00	49.20	9.00	68.50	90.20
07/31/2018	87.00	5.00	35.90	5.00	37.80	93.40
08/31/2018	85.00	5.00	34.80	5.00	37.70	92.40
09/30/2018	49.00	7.00	54.90	13.00	96.50	83.70
10/31/2018	107.00	13.00	94.60	43.00	296.90	85.10
11/30/2018	90.00	6.00	43.10	6.00	46.20	92.70
12/31/2018	49.00	5.00	41.80	7.00	58.00	86.30
01/31/2019	61.00	8.00	89.10	19.00	230.60	77.00
Data Points, n	51	51	51	51	51	51
Minimum	112.66					68.20
Average	212.00	11.30	68.08	17.49	110.51	89.09
Maximum				107.00	657.70	

* Data unavailable

Effluent Total Ammonia as N

Monitoring Period End Date	Monthly Avg, mg/l	Monthly Avg, lb/d	Weekly Avg, mg/l	Weekly Avg, lb/d
07/31/2014	0.26	1.90	1.22	9.90
08/31/2014	0.00	0.10	0.00	0.20
09/30/2014	0.10	0.70	0.50	2.90
10/31/2014	0.00	0.00	0.00	0.10
11/30/2014	0.00	0.10	0.00	0.10
12/31/2014	0.00	0.10	0.00	0.10
01/31/2015	0.00	0.10	0.00	0.10
02/28/2015	0.00	0.10	0.00	0.10
03/31/2015	0.00	0.20	0.10	0.70
04/30/2015	0.00	0.10	0.00	0.10
05/31/2015	0.00	0.00	0.00	0.00
06/30/2015	0.00	0.10	0.00	0.10
07/31/2015	0.07	0.50	0.30	2.00
08/31/2015	0.10	0.50	0.20	1.50
09/30/2015	0.30	1.90	1.20	6.70
10/31/2015	0.30	1.30	0.80	4.40
11/30/2015	0.20	1.00	0.40	2.20
12/31/2015	0.60	3.10	1.80	9.70
01/31/2016	0.80	4.00	1.40	9.00
02/29/2016	0.90	5.20	1.00	6.40
03/31/2016	2.10	12.80	3.70	31.60
04/30/2016	*	*	*	*
05/31/2016	*	*	*	*
06/30/2016	1.20	6.50	1.90	12.20
07/31/2016	2.30	15.70	2.90	20.20
08/31/2016	*	*	*	*
09/30/2016	0.50	3.20	1.20	5.90
10/31/2016	*	*	*	*
11/30/2016	1.10	3.70	1.80	5.40
12/31/2016	0.40	2.10	0.90	4.20
01/31/2017	2.20	11.50	3.40	18.00
02/28/2017	0.90	2.90	1.40	3.80
03/31/2017	0.40	1.60	0.80	3.50
04/30/2017	0.50	2.80	0.70	3.90
05/31/2017	0.10	0.40	0.10	0.70
06/30/2017	0.20	1.20	0.20	1.50
07/31/2017	2.30	17.60	2.60	21.00
08/31/2017	0.90	6.70	1.70	11.00
09/30/2017	0.40	2.70	0.70	4.90
10/31/2017	0.20	1.10	0.40	2.50
11/30/2017	0.10	0.30	0.10	0.50
12/31/2017	0.10	0.50	0.10	0.60
01/31/2018	0.20	1.10	0.40	1.70
02/28/2018	0.90	9.20	3.40	26.20
03/31/2018	0.40	3.20	1.00	7.00
04/30/2018	0.30	2.40	0.70	5.20
05/31/2018	1.40	9.40	2.00	13.90
06/30/2018	1.60	11.80	4.80	36.80
07/31/2018	0.10	0.60	0.20	1.30
08/31/2018	0.10	0.70	0.20	1.30
09/30/2018	0.10	0.50	0.10	0.80
10/31/2018	0.10	0.70	0.20	1.50
11/30/2018	0.00	0.40	0.10	0.50
12/31/2018	0.00	0.30	0.00	0.40
01/31/2019	0.20	2.20	0.80	9.80

Data Points, n	51	51	51	51
Average	0.49	3.07	0.93	6.16
Maximum			4.80	36.80

* Data unavailable

Effluent pH

Monitoring Period End Date	Daily Min, S.U.	Daily Max, S.U.
07/31/2014	6.40	7.90
08/31/2014	6.10	7.80
09/30/2014	6.20	8.00
10/31/2014	5.40	7.90
11/30/2014	6.10	7.80
12/31/2014	5.60	8.00
01/31/2015	6.00	7.80
02/28/2015	5.50	7.80
03/31/2015	5.90	8.00
04/30/2015	6.00	8.20
05/31/2015	6.20	8.30
06/30/2015	6.30	8.10
07/31/2015	6.20	8.10
08/31/2015	6.20	8.30
09/30/2015	6.20	8.00
10/31/2015	6.30	7.90
11/30/2015	6.20	7.90
12/31/2015	6.40	8.40
01/31/2016	6.30	8.20
02/29/2016	6.00	7.70
03/31/2016	6.40	7.80
04/30/2016	*	*
05/31/2016	*	*
06/30/2016	6.40	7.80
07/31/2016	6.90	7.90
08/31/2016	*	*
09/30/2016	7.00	8.00
10/31/2016	*	*
11/30/2016	6.70	7.50
12/31/2016	7.10	8.00
01/31/2017	6.40	7.80
02/28/2017	6.40	7.90
03/31/2017	6.00	7.80
04/30/2017	6.20	8.00
05/31/2017	6.70	8.00
06/30/2017	6.50	8.00
07/31/2017	6.20	7.90
08/31/2017	6.70	8.10
09/30/2017	6.70	7.90
10/31/2017	6.70	7.90
11/30/2017	7.00	8.10
12/31/2017	7.00	7.70
01/31/2018	6.90	7.70

02/28/2018	6.90	7.80
03/31/2018	6.80	7.70
04/30/2018	6.50	7.90
05/31/2018	7.00	7.80
06/30/2018	6.90	7.70
07/31/2018	6.90	7.70
08/31/2018	6.90	7.70
09/30/2018	6.90	7.50
10/31/2018	7.00	7.50
11/30/2018	6.20	7.50
12/31/2018	6.80	7.50
01/31/2019	7.00	7.80

Data Points, n	51	51
Minimum	5.40	
Maximum		8.40

* Data unavailable

Effluent Dissolved Oxygen (DO)

Monitoring Period End Date	Minimum, mg/l
07/31/2014	6.60
08/31/2014	6.20
09/30/2014	6.20
10/31/2014	6.90
11/30/2014	7.50
12/31/2014	7.60
01/31/2015	7.90
02/28/2015	9.70
03/31/2015	7.40
04/30/2015	7.00
05/31/2015	6.80
06/30/2015	5.90
07/31/2015	6.80
08/31/2015	7.00
09/30/2015	6.80
10/31/2015	7.10
11/30/2015	7.30
12/31/2015	6.60
01/31/2016	6.69
02/29/2016	7.65
03/31/2016	6.80
04/30/2016	*
05/31/2016	*
06/30/2016	5.90
07/31/2016	6.00
08/31/2016	*
09/30/2016	6.10
10/31/2016	*
11/30/2016	5.30
12/31/2016	5.20
01/31/2017	6.80
02/28/2017	7.40
03/31/2017	7.00
04/30/2017	7.10
05/31/2017	7.00
06/30/2017	6.80
07/31/2017	5.40
08/31/2017	6.30
09/30/2017	6.60
10/31/2017	6.60
11/30/2017	6.60
12/31/2017	6.40
01/31/2018	7.50

02/28/2018	6.30
03/31/2018	7.40
04/30/2018	7.30
05/31/2018	6.50
06/30/2018	6.30
07/31/2018	4.10
08/31/2018	6.50
09/30/2018	6.90
10/31/2018	6.60
11/30/2018	7.30
12/31/2018	7.90
01/31/2019	7.80

Data Points, n	51
Minimum	4.10
Average	6.77

* Data unavailable

Effluent Fecal Coliform – Winter

Monitoring Period End Date	Monthly Geomean, #/100 mL	Weekly Geomean, #/100 mL
11/30/2014	2.00	2.00
12/31/2014	2.00	2.00
01/31/2015	1.20	1.60
02/28/2015	2.00	2.00
03/31/2015	1.30	1.30
04/30/2015	2.00	2.00
11/30/2015	1.20	1.20
12/31/2015	2.00	2.00
01/31/2016	2.00	2.00
02/29/2016	1.00	2.00
03/31/2016	1.70	2.00
04/30/2016	*	*
11/30/2016	47.90	124.00
12/31/2016	112.20	160.00
01/31/2017	57.10	132.00
02/28/2017	20.00	84.00
03/31/2017	101.90	840.00
04/30/2017	88.30	120.00
11/30/2017	46.10	70.00
12/31/2017	35.20	64.00
01/31/2018	51.30	364.00
02/28/2018	81.60	30,808.00
03/31/2018	36.00	54.00
04/30/2018	53.00	88.00
11/30/2018	39.00	48.00
12/31/2018	80.00	164.00
01/31/2019	945.00	3,500.00

Data Points, n	26	26
Average	69.73	1,409.23
Maximum		30,808.00

* Data unavailable

Effluent Fecal Coliform – Summer

Monitoring Period End Date	Monthly Geomean, #/100 mL	Weekly Geomean, #/100 mL
07/31/2014	2.00	2.00
08/31/2014	1.30	1.30
09/30/2014	2.00	2.00
10/31/2014	2.00	2.00
05/31/2015	1.00	1.00
06/30/2015	2.00	2.00
07/31/2015	2.00	2.00
08/31/2015	2.00	2.00
09/30/2015	1.30	1.30
10/31/2015	1.40	1.40
05/31/2016	*	*
06/30/2016	53.00	92.00
07/31/2016	28.70	112.00
08/31/2016	*	*
09/30/2016	47.30	132.00
10/31/2016	*	*
05/31/2017	117.40	168.00
06/30/2017	72.50	160.00
07/31/2017	456.10	52,000.00
08/31/2017	172.40	4,000.00
09/30/2017	4,997.00	59,940.00
10/31/2017	129.80	600.00
05/31/2018	137.00	7,071.00
06/30/2018	231.00	525.00
07/31/2018	393.00	960.00
08/31/2018	49.00	95.00
09/30/2018	19.00	32.00
10/31/2018	58.00	160.00

Data Points, n	25	25
Average	279.13	5,042.56
Maximum		59,940.00

* Data unavailable

Effluent Total Recoverable Copper

Monitoring Period End Date	Daily Max, ug/l
07/31/2014	20.00
08/31/2014	0.02
09/30/2014	*
10/31/2014	20.00
11/30/2014	0.08
12/31/2014	0.07
01/31/2015	0.18
02/28/2015	0.02
03/31/2015	0.02
04/30/2015	0.02
05/31/2015	0.00
06/30/2015	*
07/31/2015	*
08/31/2015	0.03
09/30/2015	0.02
10/31/2015	41.00
11/30/2015	0.02
12/31/2015	0.13
01/31/2016	36.00
02/29/2016	20.00
03/31/2016	20.00
04/30/2016	*
05/31/2016	*
06/30/2016	19.00
07/31/2016	23.10
08/31/2016	*
09/30/2016	*
10/31/2016	*
11/30/2016	20.00
12/31/2016	20.30
01/31/2017	20.00
02/28/2017	15.80
03/31/2017	42.20
04/30/2017	12.40
05/31/2017	24.00
06/30/2017	7.40
07/31/2017	15.60
08/31/2017	12.00
09/30/2017	14.00
10/31/2017	35.20
11/30/2017	25.00
12/31/2017	15.80
01/31/2018	15.70
02/28/2018	15.00
03/31/2018	5.08
04/30/2018	10.80
05/31/2018	15.40

06/30/2018	10.10
07/31/2018	20.00
08/31/2018	*
09/30/2018	16.50
10/31/2018	13.40
11/30/2018	2.35
12/31/2018	3.78
01/31/2019	5.50
10/16/2018**	2.90
10/25/2018**	5.22
10/30/2018**	3.63

Data Points, n	49
Average	12.75
Maximum	42.20

* Data unavailable

** Data from application

Effluent Total Hardness as CaCO₃

Monitoring Period End Date	Daily Max, mg/l
07/31/2014	56.00
08/31/2014	60.00
09/30/2014	*
10/31/2014	37.00
11/30/2014	56.00
12/31/2014	67.00
01/31/2015	71.00
02/28/2015	64.00
03/31/2015	67.60
04/30/2015	74.00
05/31/2015	68.70
06/30/2015	68.00
07/31/2015	*
08/31/2015	62.90
09/30/2015	66.00
10/31/2015	83.00
11/30/2015	58.00
12/31/2015	51.70
01/31/2016	76.00
02/29/2016	55.00
03/31/2016	54.00
04/30/2016	*
05/31/2016	*
06/30/2016	68.00
07/31/2016	70.00
08/31/2016	*
09/30/2016	*
10/31/2016	*
11/30/2016	*
12/31/2016	93.00
01/31/2017	21.80
02/28/2017	65.00
03/31/2017	87.00
04/30/2017	53.00
05/31/2017	87.80
06/30/2017	62.80
07/31/2017	62.90
08/31/2017	97.80
09/30/2017	86.70
10/31/2017	57.40
11/30/2017	87.40
12/31/2017	78.50
01/31/2018	64.10
02/28/2018	56.40
03/31/2018	87.80
04/30/2018	53.80
05/31/2018	60.30

06/30/2018	98.00
07/31/2018	66.40
08/31/2018	*
09/30/2018	60.10
10/31/2018	54.80
11/30/2018	*
12/31/2018	56.30
01/31/2019	76.90
10/16/2018**	60.30
10/25/2018**	81.70
10/30/2018**	80.70

Data Points, n	48
Minimum	21.80
Average	67.35
Maximum	98.00

* Data unavailable

** Data from application

Effluent Total Nitrogen as N

Monitoring Period End Date	Daily Max, mg/l
09/30/2014	0.96
12/31/2014	0.50
03/31/2015	0.01
06/30/2015	0.00
09/30/2015	13.98
12/31/2015	3.00
03/31/2016	*
06/30/2016	*
09/30/2016	*
12/31/2016	3.04
03/31/2017	*
06/30/2017	*
09/30/2017	2.35
12/31/2017	3.87
03/31/2018	2.59
06/30/2018	1.54
09/30/2018	3.82
12/31/2018	6.19

Data Points, n	13
Average	3.22
Maximum	13.98

* Data unavailable

Effluent Total Phosphorous as P

Monitoring Period End Date	Daily Max, mg/l
09/30/2014	0.50
12/31/2014	1.30
03/31/2015	0.71
06/30/2015	2.84
09/30/2015	5.16
12/31/2015	5.36
03/31/2016	*
06/30/2016	*
09/30/2016	*
12/31/2016	1.03
03/31/2017	*
06/30/2017	*
09/30/2017	2.53
12/31/2017	1.41
03/31/2018	0.82
06/30/2018	0.50
09/30/2018	1.37
12/31/2018	1.06

Data Points, n	13
Average	1.89
Maximum	5.36

* Data unavailable

Instream Conductivity

Monitoring Period End Date	Upstream - Wolf Creek			Downstream - Kentawka Canal			Downstream - Pearl River		
	Daily Min, umho/cm	Daily Avg, umho/cm	Daily Max, umho/cm	Daily Min, umho/cm	Daily Avg, umho/cm	Daily Max, umho/cm	Daily Min, umho/cm	Daily Avg, umho/cm	Daily Max, umho/cm
07/31/2014	169.00	169.00	169.00	241.00	241.00	241.00	284.00	284.00	284.00
08/31/2014	162.00	162.00	162.00	241.00	241.00	241.00	274.00	274.00	274.00
09/30/2014	78.80	78.80	78.80	82.40	82.40	82.40	86.00	86.00	86.00
06/30/2015	140.00	140.00	140.00	218.50	218.50	218.50	343.50	343.50	343.50
07/31/2015	170.00	170.00	170.00	254.00	254.00	254.00	382.50	382.50	382.50
08/31/2015	131.00	149.00	167.00	265.00	292.00	319.00	341.00	341.00	341.00
09/30/2015	159.00	162.50	166.00	241.00	242.50	244.00	343.00	364.50	386.00
06/30/2016	175.00	195.50	216.00	195.00	260.50	326.00	107.00	160.00	213.00
07/31/2016	239.00	256.50	274.00	144.00	179.50	215.00	194.00	195.50	197.00
08/31/2016	*	*	*	*	*	*	*	*	*
09/30/2016	231.00	263.00	295.00	228.00	243.00	258.00	116.00	133.00	150.00
06/30/2017	33.00	61.00	89.00	34.00	60.50	87.00	131.00	138.50	146.00
07/31/2017	109.00	132.50	156.00	111.00	134.50	158.00	55.00	58.00	61.00
08/31/2017	87.00	139.00	191.00	101.00	146.00	191.00	77.00	162.00	247.00
09/30/2017	166.00	210.50	255.00	91.00	94.50	98.00	153.00	168.50	184.00
06/30/2018	216.00	244.50	273.00	108.00	266.50	425.00	73.00	81.50	90.00
07/31/2018	74.00	127.00	180.00	72.00	108.50	145.00	74.00	77.50	81.00
08/31/2018	95.00	147.50	200.00	112.00	142.00	172.00	91.00	98.00	105.00
09/30/2018	160.00	180.00	200.00	93.00	112.00	131.00	69.00	84.00	99.00

Data Points, n	18	18	18	18	18	18	18	18	18
Minimum	33.00			34.00			55.00		
Average		166.02			184.38			190.67	
Maximum			295.00			425.00			386.00

* Data unavailable

Instream Dissolved Oxygen

Monitoring Period End Date	Upstream - Wolf Creek			Downstream - Kentawka Canal			Downstream - Pearl River		
	Daily Min, mg/l	Daily Avg, mg/l	Daily Max, mg/l	Daily Min, mg/l	Daily Avg, mg/l	Daily Max, mg/l	Daily Min, mg/l	Daily Avg, mg/l	Daily Max, mg/l
07/31/2014	6.00	6.00	6.00	69.1**	6.10	6.10	6.70	6.70	6.70
08/31/2014	6.00	6.00	6.00	6.10	6.10	6.10	6.50	6.50	6.50
09/30/2014	6.00	6.00	6.00	6.30	6.30	6.30	6.80	6.80	6.80
06/30/2015	10.40	10.40	10.40	5.75	5.75	5.75	6.55	6.55	6.55
07/31/2015	5.50	5.50	5.50	6.00	6.00	6.00	6.65	6.65	6.65
08/31/2015	6.00	6.00	60.00**	6.20	6.25	6.30	6.80	7.10	7.40
09/30/2015	5.60	5.70	5.80	5.90	6.00	6.10	6.60	6.60	6.60
06/30/2016	7.70	7.90	8.10	7.50	8.20	8.90	8.50	8.55	8.60
07/31/2016	7.90	8.00	8.10	7.60	8.00	8.40	7.80	8.00	8.20
08/31/2016	*	*	*	*	*	*	*	*	*
09/30/2016	6.10	6.15	6.20	6.60	6.65	6.70	6.90	6.90	6.90
06/30/2017	6.20	6.45	6.70	6.20	6.60	7.00	6.10	7.00	7.90
07/31/2017	5.10	5.70	6.30	5.40	6.15	6.90	5.00	5.55	6.10
08/31/2017	6.30	6.60	6.90	6.30	6.35	6.40	4.80	5.05	5.30
09/30/2017	6.00	6.15	6.30	6.50	6.55	6.60	7.00	7.20	7.40
06/30/2018	4.30	5.00	5.60	5.90	6.50	7.10	6.50	6.80	7.10
07/31/2018	6.00	6.50	6.90	6.50	6.90	7.20	6.00	6.40	6.80
08/31/2018	4.80	5.60	6.30	6.20	6.40	6.60	7.20	7.40	7.60
09/30/2018	5.40	5.70	5.90	6.60	7.00	7.30	6.50	7.00	7.40

Data Points, n	18	18	17	17	18	18	18	18	18
Minimum	4.30			5.40			4.80		
Average		6.41			6.54			6.82	
Maximum			10.40			8.90			8.60

* Data unavailable

** Value assumed to be a typo

Instream pH

Monitoring Period End Date	Upstream - Wolf Creek		Downstream - Kentawka Canal		Downstream - Pearl River	
	Daily Min, S.U.	Daily Max, S.U.	Daily Min, S.U.	Daily Max, S.U.	Daily Min, S.U.	Daily Max, S.U.
07/31/2014	6.10	6.10	6.40	6.40	7.40	7.40
08/31/2014	6.30	6.30	6.50	6.50	7.30	7.30
09/30/2014	6.20	6.20	6.50	6.50	7.40	7.40
06/30/2015	6.05	6.05	6.40	6.40	7.25	7.25
07/31/2015	6.10	6.10	6.45	6.45	7.30	7.30
08/31/2015	6.30	6.30	6.50	6.60	7.30	7.40
09/30/2015	5.90	6.00	6.10	6.20	7.30	7.40
06/30/2016	7.10	8.00	6.90	8.10	7.80	8.20
07/31/2016	7.20	7.70	7.00	7.60	7.40	7.60
08/31/2016	*	*	*	*	*	*
09/30/2016	7.10	7.20	7.20	7.40	7.00	7.20
06/30/2017	6.30	6.90	6.10	6.90	6.40	7.40
07/31/2017	7.00	7.10	7.10	7.20	6.60	6.70
08/31/2017	6.80	7.20	6.70	7.00	6.70	7.00
09/30/2017	6.70	6.80	6.70	7.10	6.90	7.50
06/30/2018	6.80	6.80	6.90	7.40	6.40	6.40
07/31/2018	6.20	6.30	6.40	6.70	6.60	6.70
08/31/2018	6.30	6.80	6.80	7.20	6.40	6.70
09/30/2018	6.20	6.50	7.10	7.20	5.90	6.40

Data Points, n	18	18	18	18	18	18
Minimum	5.90		6.10		5.90	
Maximum		8.00		8.10		8.20

* Data unavailable

Instream Temperature

Monitoring Period End Date	Upstream - Wolf Creek			Downstream - Kentawka Canal			Downstream - Pearl River		
	Daily Min, Deg F	Daily Avg, Deg F	Daily Max, Deg F	Daily Min, Deg F	Daily Avg, Deg F	Daily Max, Deg F	Daily Min, Deg F	Daily Avg, Deg F	Daily Max, Deg F
07/31/2014	75.20	75.20	75.20	75.20	75.20	75.20	75.20	75.20	75.20
08/31/2014	84.20	84.20	84.20	86.00	86.00	86.00	87.80	87.80	87.80
09/30/2014	86.00	86.00	86.00	82.40	82.40	82.40	*	*	*
06/30/2015	78.80	78.80	78.80	80.60	80.60	80.60	82.40	82.40	82.40
07/31/2015	25.50	25.50	25.50	27.00	27.00	27.00	28.00	28.00	28.00
08/31/2015	23.00	24.50	26.00	23.00	24.50	26.00	24.00	24.50	25.00
09/30/2015	24.00	24.50	25.00	24.00	25.00	26.00	28.00	29.00	30.00
06/30/2016	77.00	79.95	82.90	63.30	68.08	72.86	73.58	76.19	78.80
07/31/2016	79.52	80.51	81.50	69.40	76.90	84.40	71.60	75.92	80.24
08/31/2016	*	*	*	*	*	*	*	*	*
09/30/2016	79.16	80.69	82.22	78.08	79.16	80.24	81.68	83.39	85.10
06/30/2017	74.00	74.95	75.90	74.00	75.60	77.18	73.40	77.00	80.60
07/31/2017	79.52	80.33	81.14	78.40	80.20	82.00	80.24	81.42	82.60
08/31/2017	77.00	78.44	79.88	76.28	79.43	82.58	77.54	80.06	82.58
09/30/2017	71.24	71.24	71.24	70.88	71.78	72.68	77.54	79.70	81.86
06/30/2018	82.00	82.80	83.50	82.60	84.50	86.40	82.40	84.10	85.80
07/31/2018	77.90	77.90	77.90	77.50	77.90	78.30	80.80	81.10	81.30
08/31/2018	79.50	81.10	82.60	74.80	78.30	81.70	81.00	83.40	85.80
09/30/2018	76.50	76.80	77.20	77.70	78.50	79.30	80.60	81.10	81.70

Data Points, n	18	18	18	18	18	18	17	17	17
Minimum	23.00			23.00			24.00		
Average		70.19			69.50			71.19	
Maximum			86.00			86.40			87.80

* Data unavailable

Appendix 3 – Reasonable Potential Analysis

Method

The Mississippi Band of Choctaw Indians have not promulgated water quality standards for metals and organics for tribal waters. The receiving waterbody crosses the State/Tribal boundary shortly downstream of the outfall, and the State of Mississippi has promulgated metals and organics water quality standards. Therefore, the reasonable potential analysis was designed to assess if there is reasonable potential for the Pearl River WWTF's effluent to cause or contribute to the exceedance of the State of Mississippi's water quality standards at the State/Tribal boundary.

EPA's *Technical Support Document for Water Quality-Based Toxics Control* (1991 EPA/505/2-90-001) (TSD) provides guidance for assessing potential toxicity for metals and man-made organic toxicant pollutants. The following from the TSD Chapter 3 page 53 illustrates the methodology employed for this permit reissuance. The method references a Table 3-1 or 3-2 in the TSD for selection of reasonable potential multiplying factors. For this analysis, the EPA used the 95%ile (Table 3-2).

Box 3-2. Determining "Reasonable Potential" for Excursions Above Ambient Criteria Using Effluent Data Only

EPA recommends finding that a permittee has "reasonable potential" to exceed a receiving water quality standard if it cannot be demonstrated with a high confidence level that the upper bound of the lognormal distribution of effluent concentrations is below the receiving water criteria at specified low-flow conditions.

- Step 1** Determine the number of total observations ("n") for a particular set of effluent data (concentrations or toxic units [TUs]), and determine the highest value from that data set.
- Step 2** Determine the coefficient of variation for the data set. For a data set where $n < 10$, the coefficient of variation (CV) is estimated to equal 0.6, or the CV is calculated from data obtained from a discharger. For a data set where $n > 10$, the CV is calculated as standard deviation/mean (see Figure 3-1). For less than 10 items of data, the uncertainty in the CV is too large to calculate a standard deviation or mean with sufficient confidence.
- Step 3** Determine the appropriate ratio from Table 3-1 or 3-2.
- Step 4** Multiply the highest value from a data set by the value from Table 3-1 or 3-2. Use this value with the appropriate dilution to project a maximum receiving water concentration (RWC).
- Step 5** Compare the projected maximum RWC to the applicable standard (criteria maximum concentration, criteria continuous concentration [CCC], or reference ambient concentration). EPA recommends that permitting authorities find reasonable potential when the projected RWC is greater than an ambient criterion.

Example

Consider the following results of toxicity measurements of an effluent that is being characterized: 5 TU_C , 2 TU_C , 9 TU_C , and 6 TU_C . Assume that the effluent is diluted to 2 percent at the edge of the mixing zone. Further assume that the CV is 0.6, the upper bound of the effluent distribution is the 99th percentile, and the confidence level is 99 percent.

- Step 1** There are four samples, and the maximum value of the sample results is 9 TU_C .
- Step 2** The value of the CV is 0.6.
- Step 3** The value of the ratio for four pieces of data and a CV of 0.6 is 4.7.
- Step 4** The value that exceeds the 99th percentile of the distribution (ratio times x_{max}) after dilution is calculated as:

$$[9 TU_C \times 4.7 \times 0.02] = 0.85 TU_C$$

- Step 5** 0.85 TU_C is less than the ambient criteria concentration of 1.0 TU_C . There is no reasonable potential for this effluent to cause an excursion above the CCC.

Due to the low drought flow in the stream, the conservative assumption was made to not provide the facility a dilution allowance so that the State of Mississippi's water quality standards were applied at end-of-pipe. Average effluent hardness and TSS values were calculated from DMR data and data from Application Form 2A Part D (see Appendix 2), and flows and calculated combined hardness and TSS are shown in Table 1 below. Table 2 includes the calculations and results of the reasonable potential analysis, as well as the calculated water quality-based effluent limits (WQBELs) for the pollutants of concern (shown in the second to last column from the right). The results showed reasonable potential for the facility to cause of contribute to a violation of the State of Mississippi's copper water quality criteria downstream. Therefore, limits of 18.76 µg/l monthly average and 27.19 µg/l daily maximum have been included in the permit. More details on the limit calculations for copper can be found in Appendix 5.

Table 1. Facility and Receiving Water Characteristics

Stream Flow 7Q10, cfs	0
Effluent Flow, cfs	2.325
Combined Flow, cfs	2.325
Instream Waste Concentration	100.00%
Background Instream Hardness, mg/l CaCO3	0
Effluent Hardness, mg/l CaCO3	67.35
Combined Instream Hardness, mg/l CaCO3	67.35
Background Instream TSS, mg/l CaCO3	0
Effluent TSS, mg/l CaCO3	11.3
Combined Instream TSS, mg/l CaCO3	11.3

Table 2. Reasonable Potential Analysis and WQBEL Calculation

Parameter		Background Instream Concentration	Maximum Effluent Concentration	n	C.V. (default 0.6 if n < 9)	95th Percentile Multiplying Factor	Max Predicted Effluent Concentration	FW aquatic criteria (dissolved)	Kp	fD	FW aquatic (total recoverable)	Allowable Concentration (total recoverable) - Permit Limit	RP?
		ug/L	ug/L	unitless	unitless	unitless	ug/L	ug/L	L/kg	unitless	ug/L	ug/L	
Copper	Acute	0	42.2	39	0.6487	1.05	44.3	9.26	171381.61	0.34	27.19	27.19	Limit
	Chronic	0	42.2	39	0.6487	1.05	44.3	6.39	171381.61	0.34	18.76	18.76	Limit
Mercury	Acute	0	0.00267	3	0.6	3.00	0.00801	2.10			2.10	2.10	No
	Chronic	0	0.00267	3	0.6	3.00	0.00801	0.012			0.012	0.012	No
Zinc	Acute	0	19.7	3	0.6	3.00	59.1	83.83	226857.64	0.28	298.73	298.73	No
	Chronic	0	19.7	3	0.6	3.00	59.1	84.52	226857.64	0.28	301.18	301.18	No

Appendix 4 – Ammonia Toxicity Analysis

The Tribal Band of Choctaw has not promulgated WQS. The State of Mississippi has adopted the *1999 Update of Ambient Water Quality Criteria for Ammonia*; EPA document number EPA-822-R-99-014 for ammonia toxicity. Toxicity-based ammonia limits have been developed for this permit so that these criteria will be met at the State/Tribal boundary and in state waters.

Criterion Maximum Concentration (CMC) - Salmonid Fish Present

$$CMC = \frac{0.0577}{1 + 10^{(7.204 - pH)}} + \frac{39.0}{1 + 10^{(pH - 7.204)}}$$

CMC = Instream criterion maximum concentration for total ammonia

pH = 7 SU

Instream CMC = 24.10 mg/l

$$C_E = \frac{[CMC \times (Design\ Flow + 7Q10)] - (7Q10 \times C_B)}{Design\ Flow}$$

Where:

C_B = Upstream ammonia concentration = 0 mg/l

C_E = Allowable ammonia effluent concentration, mg/l

C_E = 24.10 mg/l

Criterion Continuous Concentration (CCC) – Early Life Stages Present

$$CCC = \left(\frac{0.0577}{1 + 10^{(7.688 - pH)}} + \frac{2.487}{1 + 10^{(pH - 7.688)}} \right) \times MIN(2.85, 1.45 \times 10^{[0.028 \times (25 - T)])}$$

CCC = Instream criterion continuous concentration for total ammonia

$$C_E = \frac{[CCC \times (Design\ Flow + 7Q10)] - (7Q10 \times C_B)}{Design\ Flow}$$

Where:

C_B = Upstream ammonia concentration = 0 mg/l

C_E = Allowable ammonia effluent concentration, mg/l

Summer (May 1st – Oct 31st)

pH = 7 SU, T = 30 °C

CCC (Summer) = 2.18 mg/l

C_E(Summer) = 2.18 mg/l

Winter (Nov 1st – Apr 30th)

pH = 7 SU, T = 20 °C

CCC (Winter) = 4.15 mg/l

C_E(Winter) = 4.15 mg/l

The seasonal limits based on the Instream CCC criteria are more stringent than the limit based on the Instream CMC criteria. Therefore, the limits of 2.18 mg/l (Summer) and 4.15 mg/l (Winter) will be used to compare against the DO-based ammonia WQBELs developed in the QUAL-2E model.

Appendix 5 – Calculation of Copper Limits

The calculation of total recoverable copper limits for this facility relied on Mississippi’s adopted hardness-based copper water quality criteria and the TSS-based metals translator as outlined in EPA’s 1996 Metals Translator Guidance. Average values of effluent hardness and TSS were calculated based on reported effluent data in DMRs and Application Form 2A Part D (see Appendix 2). The equations used were as follows:

Acute Copper Criteria

$$CMC_{total\ dissolved}, \frac{\mu g}{l} = e^{0.9422 \times \ln(Total\ Hardness, mg/l) - 1.7} \times 0.96$$

An average effluent hardness value of 67.35 mg/l was used to calculate a $CMC_{total\ dissolved}$ value of 9.26 $\mu g/l$

Chronic Copper Criteria

$$CCC_{total\ dissolved}, \frac{\mu g}{l} = e^{0.8545 \times \ln(Total\ Hardness, mg/l) - 1.702} \times 0.96$$

An average effluent hardness value of 67.35 mg/l was used to calculate a $CCC_{total\ dissolved}$ value of 6.39 $\mu g/l$

TSS-based Metals Translator for Copper

$$K_p = 1.04 \times 10^6 \times TSS^{(-0.7436)}$$

$$f_D = 1 / (1 + TSS \times K_p \times 10^{-6})$$

$$C_{total\ recoverable}, \frac{\mu g}{l} = C_{total\ dissolved}, \mu g/l / f_D$$

An average effluent TSS value of 11.03 mg/l was used to calculate a K_p value of 171381.61 and an f_D value of 0.34. The total recoverable CMC and CCC values were then calculated to be 27.19 $\mu g/l$ and 18.76 $\mu g/l$, respectively. Because no dilution allowance was granted to this facility, the daily maximum and monthly average copper limits were calculated to be 27.19 $\mu g/l$ and 18.76 $\mu g/l$, respectively.