NPDES PERMIT NO. OK0046087
FACT SHEET

FOR THE DRAFT NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM (NPDES) PERMIT TO DISCHARGE TO WATERS OF THE UNITED STATES

APPLICANT

Choctaw Nation of Oklahoma WWTP - Hochatown
3651 Big Lots Parkway
Durant, OK 74701

ISSUING OFFICE

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DATE PREPARED

July 5, 2022

PERMIT ACTION

It is proposed that the facility be issued a first-time National Pollutant Discharge Elimination System (NPDES) permit for a 5-year term in accordance with regulations contained in 40 Code of Federal Regulations (CFR) 122.46(a).

RECEIVING WATER – BASIN

Unnamed Tributary to Yashua (Yashoo) Creek, Red River Basin - Little River

DOCUMENT ABBREVIATIONS

In the document that follows, various abbreviations are used. They are as follows:

7Q2	7-day, 2-year low flow
BAT	Best available technology economically achievable
BCT	Best conventional pollutant control technology
BPT	Best practicable control technology currently available
BMP	Best management plan
BOD	Biochemical oxygen demand (five-day unless noted otherwise)
BPJ	Best professional judgment
$CaCO_3$	Calcium carbonate
CD	Critical dilution
CFR	Code of Federal Regulations
cfs	Cubic feet per second
CFU	Colony forming units
COD	Chemical oxygen demand
COE	United States Corp of Engineers
CWA	Clean Water Act
DAF	Dissolved air flotation
DEQ	Oklahoma Department of Environmental Quality
DMR	Discharge monitoring report
DO	Dissolved oxygen
ELG	Effluent limitation guidelines
EPA	United States Environmental Protection Agency
ESA	Endangered Species Act
FCB	Fecal coliform bacteria
F&WS	United States Fish and Wildlife Service
ug/L	Micrograms per litter (one part per billion)
mg/L	Milligrams per liter (one part per million)
MGD	Million gallons per day
MPN	Most probable number
NPDES	National Pollutant Discharge Elimination System
MQL	Minimum quantification level
O&G	Oil and grease
POTW	Publicly owned treatment works
RAS	Return activated sludge
RP	Reasonable potential
SIC	Standard industrial classification
s.u.	Standard units (for parameter pH)
TBELs	Technology-based effluent limitations
TDS	Total dissolved solids
TMDL	Total maximum daily load
TRC	Total residual chlorine
TSS	Total suspended solids
USGS	United States Geological Service
UV	Ultraviolet Light
WET	Whole effluent toxicity
WLA	Waste-load Allocation
WQBELs	Water quality-based effluent limitations
WQMP	Water Quality Management Plan
WWTP	Wastewater treatment plant

As used in this document, references to State water quality standards and/or rules, regulations and/or management plans may mean the State of Oklahoma and/or Tribal or both.

I. CHANGES FROM THE PREVIOUS PERMIT

First-time issuance

II. APPLICANT ACTIVITY

Under the Standard Industrial Classification Code 4952, the applicant proposed to operate a municipal wastewater treatment plant with a design capacity of 0.095 million gallons per day (MGD) serving a population of approximately 1,357. The tribe has housing, learning, cultural, and enterprise centers, and they operate a gaming and entertainment facility. The new POTW will connect all tribal buildings by constructing sewer lines, lift stations and route this wastewater to this proposed wastewater treatment facility.

The proposed treatment process described in the application are bar screens to remove solids, flow equalization basin, a Parshall flume with an ultra-sonic flow meter to measure flow entering the treatment process, then treatment will go through a three-stage extended aeration process and clarification. Before discharging, effluent will be disinfected. The permittee is considering one of two options for disinfection, Ultraviolet Light (UV) Disinfection or Chlorination Disinfection.

As described in the application, the proposed WWTP is located at Highway 259A, Hochatown, in the S½, SE¼, Section 1, Township 5 South, Range 24 East, Indian Meridian, McCurtain County, Oklahoma. The single outfall of the facility, not yet constructed, is to be located at the following coordinates:

Latitude: 34º 08' 52.0741" North Longitude: 94º 44' 26.3482" West

The facility will be required to supply post-construction latitude/longitude coordinates of the discharge pipe as part of the permit.

The discharge from the proposed WWTP enters an unnamed tributary on Choctaw Nation tribal trust lands thence to Yashau (Yashoo) Creek, which is approximately 0.5 miles stream length downstream of the outfall. (See Appendix 1)

III. REGULATORY AUTHORITY/PERMIT ACTION

In November 1972, Congress passed the Federal Water Pollution Control Act establishing the NPDES permit program to control water pollution. These amendments established technology-based or end-of-pipe control mechanisms and an interim goal to achieve “water quality which provides for the protection and propagation of fish, shellfish, and wildlife and provides for recreation in and on the water”; more commonly known as the “swimmable, fishable” goal. Further amendments in 1977 of the CWA gave EPA the authority to implement pollution control programs such as setting

wastewater standards for industry and established the basic structure for regulating pollutants discharges into the waters of the United States. In addition, it made it unlawful for any person to discharge any pollutant from a point source into navigable waters, unless a permit was obtained under its provisions. Regulations governing the EPA administered NPDES permit program are generally found at 40 CFR §122 (program requirements & permit conditions), §124 (procedures for decision making), §125 (technology-based standards) and §136 (analytical procedures). Other parts of 40 CFR provide guidance for specific activities and may be used in this document as required.

IV. DRAFT PERMIT RATIONALE AND PROPOSED PERMIT CONDITIONS

A. OVERVIEW OF TECHNOLOGY-BASED VERSUS WATER QUALITY STANDARDS-BASED EFFLUENT LIMITATIONS AND CONDITIONS

The proposed effluent limitations for those pollutants proposed to be limited are based on regulations promulgated at 40 CFR 122.44. The draft permit limits are based on either technology-based effluent limit pursuant to 40 CFR 122.44(a), on BPJ in the absence of guidelines, Tribal and/or State of Oklahoma WQS and/or requirements pursuant to 40 CFR 122.44(d), whichever are more stringent.

It is proposed that the permit be issued for a 5-year term following regulations promulgated at 40 CFR §122.46(a). The permittee submitted their application to EPA on November 08, 2021. The application was determined to be complete December 01, 2021.

The facility is a new discharger as defined in 40 CFR 122.2 and 40 CFR 122.29 and not a new source.

B. TECHNOLOGY-BASED EFFLUENT LIMITATIONS/CONDITIONS

Regulations promulgated at 40 CFR §122.44 (a) require TBELs to be placed in NPDES permits based on ELGs where applicable, on BPJ in the absence of guidelines, or on a combination of the two. In the absence of promulgated guidelines for the discharge, permit conditions may be established using BPJ procedures. EPA establishes limitations based on the following technology-based controls: BPT, BCT, and BAT. These levels of treatment are:

BPT - The first level of technology-based standards generally based on the average of the best existing performance facilities within an industrial category or subcategory.

BCT - Technology-based standard for the discharge from existing industrial point sources of conventional pollutants including BOD, TSS, fecal coliform, pH, and O&G.

BAT - The most appropriate means available on a national basis for controlling the direct discharge of toxic and non-conventional pollutants to navigable waters. BAT effluent

limits represent the best existing performance of treatment technologies that are economically achievable within an industrial point source category or subcategory.

The facility is a POTW treating sanitary wastewater. POTW's have technology based ELG's established at 40 CFR Part 133, Secondary Treatment Regulation. Pollutants with ELG's established in this Chapter are $CBOD_5$, TSS and pH. $CBOD_5$ limits of 25 mg/L for the 30-day average and 40 mg/L for the 7-day average and 85% percent (minimum) removal are found at 40 CFR §133.102(a)(4). The technology based ELG's of 25/40 mg/L for $CBOD_5$ is consistent with DEQ's definition of secondary treatment for discharges to perennial streams (Yashoo Creek is a perennial stream) at OAC 252:606-5-2(B). However, in ODEQ permitting TBELs are established as 18/25 mg/L $CBOD_5$ based on the definition of secondary treatment for discharges to intermittent streams (the unnamed tributary is an intermittent stream) at OAC 252:606-5-2(C). TSS limits, 30 mg/L for the 30-day average and 45 mg/L for the 7-day average, and 85% percent (minimum) removal, are, also, found at 40 CFR §133.102(b). ELG's for pH are between 6-9 s.u. and are found at 40 CFR §133.102(c). Regulations at 40 CFR §122.45(f)(1) require all pollutants limited in permits to have limits expressed in terms of mass such as pounds per day. When determining mass limits for POTW's, the plant's design flow is used to establish the mass load. Mass limits are determined by the following mathematical relationship:

Loading in lbs/day = pollutant concentration in mg/L * 8.345 lbs/gal * design flow in MGD

30-day average TSS loading = 30 mg/L * 8.345 lbs/gal * 0.095 MGD
30-day average TSS loading = 23.78 lbs/day

7-day average TSS loading = 45 mg/L * 8.345 lbs/gal * 0.095 MGD
7-day average TSS loading = 35.67 lbs/day

30-day average $CBOD_5$ loading = 25 mg/L * 8.345 lbs/gal * 0.095 MGD
30-day average $CBOD_5$ loading = 19.81 lbs/day

7-day average $CBOD_5$ loading = 40 mg/L * 8.345 lbs/gal * 0.095 MGD
7-day average $CBOD_5$ loading = 31.71 lbs/day

A summary of the technology-based limits for the facility is:

Final Effluent Limits 0.095 MGD design flow

Parameter	**30-Day Avg.**	**7-Day Avg.**	**30-Day Avg.**	**7-Day Avg.**
Flow	N/A	N/A	Measure MGD	Measure MGD
$CBOD_5$	19.81 lbs/Day (2)	31.71 lbs/Day (2)	25 mg/L (2)	40 mg/L (2)
$CBOD_5$, % removal (1)	≥ 85	---	---	---
TSS	23.78 lbs/Day	35.67 lbs/Day	30 mg/L	45 mg/L

TSS, % removal [(1)]	≥ 85			
pH	N/A	N/A	6.0 – 9.0 standard units [(3)]	

Footnotes:

(1) % Removal is calculated using the following equation: [(average monthly influent concentration – average monthly effluent concentration) ÷ average monthly influent concentration] * 100.

(2) The $CBOD_5$ concentrations based on stream segment specific WQS are more stringent than $CBOD_5$ technology-based limits of 25mg/L (30-day Average) and 40 mg/L (7-day Average). Mass loadings will be recalculated based on the more stringent concentrations. See Part V below.

(3) The pH based on stream segment specific WQS are more stringent than pH technology-based limits of 6.0-9.0 standard units. See Part V below.

V. WATER QUALITY BASED LIMITATIONS

1. General Comments

Water quality-based requirements are necessary where effluent limits more stringent than technology-based limits are necessary to maintain or achieve federal, tribe or state water quality standards. Under Section 301(b)(1)(C) of the CWA, discharges are subject to effluent limitations based on federal, tribes or state WQS. The Choctaw Nation of Oklahoma Tribe, which is not approved as Treatment as a State, does not have WQS. ODEQ is authorized to pursuant to SAEETEA to implement the CWA 303 and 402 programs within the Reservation, except in areas excluded from that approval such as tribal trust lands. The discharge is to an unnamed tributary within the boundary of Choctaw Nation of Oklahoma trust lands. Oklahoma Water Quality Standards do not apply directly to the discharge. Due to proximity of facility point of discharge to the waters under State of Oklahoma NPDES program authority (i.e., 0.5 miles), the discharge from this facility will have a reasonable potential to impact the waters where Oklahoma has NPDES permitting authority. The 40 CFR §122.4(d) requires NPDES permits be protective of a downstream state's water quality standards. Therefore, limitations of the discharge must be made to protect WQS established by the State of Oklahoma. Applying the Oklahoma WQS would also serve to protect the quality of the waters on the Choctaw Nation of Oklahoma tribal trust lands. Effluent limitations and/or conditions established in the draft permit are in compliance with applicable State WQS and applicable State water quality management plans to assure that WQS of the receiving waters are protected and maintained, or attained.

2. State of Oklahoma Water Quality Numerical Standards

a. Dissolved Oxygen (DO)

The discharge enters downstream waters under the State of Oklahoma authority named Yashoo Creek, listed in the Oklahoma WQS, Planning Segment 410210 of the Upper Arkansas River Basin. Yashoo Creek is listed in the Oklahoma Water Quality Standards (OAC 785:45) as having the following beneficial uses: public and private water supply, fish consumption, fish, and wildlife propagation – cool water aquatic community (CWAC), agriculture, primary body contact recreation and aesthetics. According to the

Oklahoma 2020 303(d) list, Yashoo Creek was impaired for CWAC, and the cause of impairment is Benthic Macroinvertebrate Bioassessment.

The following numerical DO criteria for the cool water aquatic community designated use apply to the Yashoo Creek:

Critical Low-Flow Condition (7Q2)	
Summer (June 1 – October 15):	6 mg/L
Spring (March 1 – May 31):	7.0 mg/L
Winter (October 16 – February 28):	6 mg/L

Implementation of dissolved oxygen criteria to protect the Fish and Wildlife propagation beneficial use is accomplished through using water quality modeling in accordance with OAC 252:690-3-58. To ensure the limits assigned to the discharge will cause no downstream excursion of State's DO water quality standards, EPA conducted a modeling analysis under critical low flow conditions using a simple desktop model based on the modified Streeter-Phelps equation as recommended for small, non-complex system for facilities having discharge flows less than 1 MGD (OAC 252:690-3-62). A complete characterization of the Yashoo Creek (i.e., water quality and hydrodynamic data) was not available. Where data were not available, estimates and assumptions were made. The following is a summary of model inputs.

- The Choctaw Nation of Oklahoma Wastewater-Hochatown Wastewater Treatment Plant's design flow is 0.095 MGD. The discharge location is located at Latitude 34º 08' 52.0741" North and Longitude 94º 44' 26.3482" West.
- The studied Yashoo Creek segment length is approximately 6.8 miles. A complete characterization of Yashoo Creek (i.e., background water quality, kinetic and hydrodynamic data) was not available. There is no flow data available for Yashoo Creek. EPA used a recommended critical low flow of 1 cfs (OAC 785:45-5-12). Where data were not available, EPA, for consistency, used information provided in the past McCurtain County RWD#5 Wastewater Treatment Facility WLAs modeling analysis conducted by Oklahoma Department of Environmental Quality. These include ambient Ammonia (Avg: 0.15 mg/L), ambient $CBOD_5$ (Avg: 2.0 mg/L), receiving stream average slope (28 ft/mile), side slope (0.1 ft/ft), Manning's (0.12), CBOD decay rate (0.3/day), Turney-Harris reaeration rate (15.01/day), NBOD decay rate (0.3/day), CBOD settling rate (0.03-0.05/day), and Sediment Oxygen Demand (0.065-0.1 g/ft2/day).

The parameters that are being limited are carbonaceous biochemical oxygen demand ($CBOD_5$), ammonia, as nitrogen (NH_3-N), and DO. Based on the modeling results in Appendix 2, those limits are in Table 1:

Table 1: Limits based on the modeling

Season	$CBOD_5$	NH_3-N	DO (minimum)
Summer (Jun 1 – Oct 15)	15.0 mg/L	7.0 mg/L (2)	5.0 mg/L
Spring (Mar 1 – May 31)	18.0 mg/L	12.0 mg/L (2)	6.0 mg/L
Winter (Oct 16 – Feb 28)	25.0 mg/L (1)	15.4 mg/L (2)	2.0 mg/L

Footnotes:

(1) The secondary treatment TBEL of 18 mg/L $CBOD_5$ for a discharge to an unnamed tributary is more stringent than the Winter limit of 25.0 mg/L. EPA proposes limits for $CBOD_5$ of 15.0 mg/L (Summer), 18.0 mg/L (Spring), and 18.0 mg/L (Winter).

(2) The NH_3-N concentrations based on stream segment specific WQS are more stringent than DO-based monthly average ammonia limits of 7 mg/L (Summer), 12 mg/L (Spring), and 15.4 mg/L (Winter). Mass loadings will be recalculated based on the more stringent concentrations. See Part V.2.b below.

The model results are based on the assumptions and default values as explained and presented above. Should these conditions change, the model should be updated to provide a more accurate assessment of the water quality within the receiving water body.

b. Ammonia Toxicity

(1) Criterion and Implementation

Interim implementation for controlling ammonia toxicity is described in OAC 785:46 and OAC 252:690. OAC 785:46-5-3(b)(3) states "For regulatory purposes, there is a reasonable potential for chronic toxicity if concentrations of ammonia outside the chronic regulatory mixing zone exceed 6 mg/l." For POTWs, OAC 252:690-3-20 through 3-23 requires that where seasonal DO-based monthly average ammonia limits are established, those limits must be compared with toxicity-based monthly average ammonia limits determined using the interim 6 mg/l chronic toxicity criterion, the conservative substance mixing zone equations for chronic toxicity, and a monitoring frequency of 2 per month.

(2) Toxicity-Based Ammonia Limits

Toxicity-based ammonia limits are determined in accordance with OAC 252:690-3-22.

(a) Wasteload Allocation and Criterion Long Term Average Concentration

The chronic numerical criterion for ammonia (C_C) is 6 mg/l and ammonia background concentration (C_B) is assumed to be zero. The chronic toxicity wasteload allocation equations for ammonia are as follows:

i) $WLA_{NH3} = 6(1+Q^*)/(1.94Q^*)$, for $Q^* \leq 0.1823$

ii) $WLA_{NH3} = 6(6.17-15.51Q^*)$, for $0.1823 < Q^* < 0.3333$

iii) $WLA_{NH3} = 6$ mg/L, for $Q^* \geq 0.3333$.

Where Q^* is the ratio of the regulatory effluent flow to the regulatory receiving water flow. The Q^* for this application is 0.6987, so the equation iii is used. Thus, $WLA_{NH3} = 6$ mg/l. WLA_{NH3} is a short-term value and must be converted to a long-term average for development of permit limits. LTA_{NH3} is calculated on a 99% probability basis, and the equation is as follows:

$$LTA_{NH3} = WLA_{NH3} \times EXP\left(0.5\ln\left(1+\frac{CV^2}{4}\right) - 2.326\left(\ln\left(1+\frac{CV^2}{4}\right)\right)^{0.5}\right)$$

where a CV value of 0.6 is assumed. Thus, LTA_{NH3} = 3.16 mg/l.

(b) Permit Limits

The toxicity-based monthly average limit (MAL_{NH3}) is calculated on a 95% probability basis, and the daily maximum limit (DML_{NH3}) is calculated on a 99% probability basis. The monitoring frequency basis is 2/month. The limits equations are as follows:

$$MAL_{NH3} = LTA_{NH3} \times EXP\left(1.645\left(\ln\left(1+\frac{CV^2}{N_m}\right)\right)^{0.5} - 0.5\ln\left(1+\frac{CV^2}{N_m}\right)\right)$$

where N_m is the per month monitoring frequency.

Thus, based on N_m = 2, MAL_{NH3} = 4.91 mg/l.

$$DML_{NH3} = LTA_{NH3} \times EXP\left(2.326\left(\ln\left(1+CV^2\right)\right)^{0.5} - 0.5\ln\left(1+CV^2\right)\right)$$

Thus, DML_{NH3} = 9.86 mg/l.

(3) Comparison of Toxicity-Based Ammonia Limits with DO-Based Ammonia Limits

In accordance with OAC 252:690-3-23, the most stringent monthly average limit for each season and its associated weekly average or daily maximum limit, as appropriate, is established in the permit (see Table 2).

Table 2: Seasonal effluent limits

Type of Limit	Spring (Mar 1 – May 31)			Summer (Jun 1 – Oct 15)			Winter (Oct 16 – Feb 28)		
	Monthly Average	Weekly Average	Daily Maximum	Monthly Average	Weekly Average	Daily Maximum	Monthly Average	Weekly Average	Daily Maximum
DO-Based	12 mg/L	18 mg/L	---	7.0 mg/L	10.5 mg/L	---	15.4 mg/L	23.1 mg/L	---
Toxicity-Based	4.91 mg/L	---	9.86 mg/L	4.91 mg/L	---	9.86 mg/L	4.91 mg/L	---	9.86 mg/L
Draft Permit	4.91 mg/L	---	9.86 mg/L	4.91 mg/L	---	9.86 mg/L	4.91 mg/L	---	9.86 mg/L

c. Bacteria

The State of Oklahoma WQS require limitations for bacteria based on protection for primary body contact recreation uses (OAC 785:45-5-16). The draft permit will establish limitations for E. coli bacteria of 126 colonies/100ml, 30-day average and 406 colonies/100 ml in any single sample. The limit is seasonal, with the period of protection from May 1 through September 30. The criteria for Secondary Body Contact Recreation (630 colonies/100ml, 30-day average and 2030 colonies/100 ml, daily maximum) will be applied during the remainder of the year. Analysis procedures shall follow EPA-600/4-85/076, "Test Methods for Escherichia coli and Enterococci in Water by the Membrane Filter Procedure."

d. pH

The State of Oklahoma WQS to protect the fish and wildlife protection uses is specified in the OAC 785:45-5-12 and requires pH to be between 6.5 and 9.0 s.u. This is more stringent than the technology-based limits presented earlier. The draft permit shall establish 6.5 to 9.0 s.u. for pH based on the State's WQS.

3. Post Third Round Policy and Strategy

Section 101 of the Clean Water Act (CWA) states that "...it is the national policy that the discharge of toxic pollutants in toxic amounts be prohibited..." To ensure that the CWA's prohibitions on toxic discharges are met, EPA has issued a "Policy for the Development of Water Quality-Based Permit Limitations for Toxic Pollutants 49 FR 9016-9019, 9 March 1984." In support of the national policy, Region 6 adopted the "Policy for Post Third Round NPDES Permitting" and the "Post Third Round NPDES Permit Implementation Strategy" on October 1, 1992. The Regional policy and strategy are designed to ensure that no source will be allowed to discharge any wastewater which (1) results in instream aquatic toxicity; (2) causes a violation of an applicable narrative or numerical State water quality standard resulting in nonconformance with the provisions of 40 CFR 122.44(d); (3) results in the endangerment of a drinking water supply; or (4) results in aquatic bioaccumulation which threatens human health.

4. Reasonable Potential

All applicable facilities are required to fill out appropriate sections of the Form 2A and 2S, to apply for an NPDES permit or reissuance of an NPDES permit. The new form is applicable not only to Publicly Owned Treatment Works (POTWs), but also to facilities that are like POTWs, but which do not meet the regulatory definition of "publicly owned treatment works" (like private domestics, or similar facilities on Federal property). The forms were designed and promulgated to "make it easier for permit applicants to provide the necessary information with their applications and minimize the need for additional follow-up requests from permitting authorities," per the summary statement in the preamble to the Rule. These forms became effective December 1, 1999, after publication

of the final rule on August 4, 1999, Volume 64, Number 149, pages 42433 through 42527 of the FRL.

The amount of information required for minor facilities was limited to specific sections of these forms, because they are unlikely to discharge toxic pollutants in amounts that would impact state water quality standards. Supporting information for this decision was published as "Evaluation of the Presence of Priority Pollutants in the Discharges of Minor POTW's", June 1996, and was sent to all state NPDES coordinators by EPA Headquarters. In this study, EPA collected and evaluated data on the types and quantities of toxic pollutants discharged by minor POTWs of varying sizes from less than 0.1 MGD to just under 1 MGD. The Study consisted of a query of the EPA Permit Compliance System (PCS) database from 1990 to present, an evaluation of minor POTW data provided by the State agencies, and on-site monitoring for selected toxics at 86 minor facilities across the nation.

The facility is designated as a minor and does not need to fill out the expanded pollutant testing section Part D of Form 2A. There are no toxics that need to be placed in the draft permit except for TRC described below.

a. Total Residual Chlorine

The facility indicated that they might use chlorine as an option to control bacteria. For facilities that use chlorine, the limits may be expressed as total residual chlorine (TRC). Total Residual Chlorine shall be monitored any time chlorine is used within the treatment plant for disinfection, equipment cleaning, maintenance, or any other purpose. TRC limitations will be added to this permit consistent with the State WQS for the protection of freshwater aquatic organisms. The draft permit will propose a limitation for TRC of 19 µg/l. The implementation to protect WQS in Oklahoma from chlorine toxicity is to limit chlorine as "no measurable amount". The effluent shall contain NO MEASURABLE total residual chlorine at any time. NO MEASURABLE will be defined as no detectable concentration of TRC as determined by any approved method established in 40 CFR 136.

5. Whole Effluent Toxicity Testing

In the Oklahoma Department of Environmental Quality "Continuing Planning Process", whole effluent toxicity (WET) testing is required for all major dischargers and those minor dischargers identified as posing a significant unaddressed toxic risk. This facility does not meet the design flow size, equal to or greater than 1.0 MGD, to be classified as a major discharger, and the discharge would not appear to pose a significant unaddressed toxic risk. Accordingly, the draft permit will not require WET testing.

6. Monitoring Frequency for Limited Parameters

Regulations require permits to establish monitoring requirements to yield data representative of the monitored activity 40 CFR 122.48(b) and to assure compliance with permit limitations 40 CFR 122.44(i)(1). The monitoring frequencies are based on best professional judgement, considering the nature of the facility and its design flow. Dissolved Oxygen (DO), pH, and TRC shall be measured and recorded daily using grab samples. Ammonia shall be measured and reported twice per month, by grab samples. E. coli bacteria measured and reported 2 per week and 1 per week during the recreation period (May 1 - September 30) and non-recreation period (October 1 - April 30), respectively, by grab samples. TSS and $CBOD_5$ shall be measured and reported twice per month, by grab samples.

VI. SEWAGE SLUDGE PRACTICES

The permittee shall use only those sewage sludge disposal or reuse practices that comply with the federal regulations established in 40 CFR Part 503 "Standards for the Use or Disposal of Sewage Sludge". The specific requirements in the permit apply because of the design flow of the facility, the type of waste discharged to the collection system, and the sewage sludge disposal or reuse practice utilized by the treatment works. The permittee shall submit an Annual Sludge Status report in accordance with NPDES Permit OK0046087, Part I and Part IV.

VII. WASTEWATER POLLUTION PREVENTION REQUIREMENTS

The permittee shall institute programs directed towards pollution prevention. The permittee will institute programs to improve the operating efficiency and extend the useful life of the treatment system.

VIII. INDUSTRIAL WASTEWATER CONTRIBUTIONS

Based on information provided by the applicant, the facility does not receive industrial wastewater. As such is the case, EPA has determined that the permittee will not be required to develop a full pretreatment program. However, general pretreatment provisions have been included in the permit. Written notification to EPA prior to the addition of any waste stream not identified in this application is required as specified in Part III D1b:

“Any change in the facility discharge (including the introduction of any new source or significant discharge or significant changes in the quantity or quality of existing discharges of pollutants) must be reported to the permitting authority. In no case are any new connections, increased flows, or significant changes in influent quality permitted that will cause violation of the effluent limitations specified herein.”

IX. OPERATION AND REPORTING

The applicant is required to always operate the treatment facility at maximum efficiency; to monitor the facility's discharge on a regular basis; and report the results quarterly. Reporting requirements and the requirement of using EPA-approved test procedures (methods) for the analysis and quantification of pollutants or pollutant parameters are contained in 40 CFR 122.41(l) and 40 CFR 122.21 (e), respectively. As required by 40 CFR 127.16, all Discharge Monitoring Reports (DMRs) shall be electronically reported. The monitoring results will be available to the public via EPA's Enforcement and Compliance History Online (ECHO) web site at https://echo.epa.gov.

X. 303(d) LIST

The receiving stream, an unnamed tributary on Choctaw Nation of Oklahoma tribal trust lands, is not listed on the 303(d) list. The facility has a low design flow of 0.095 MGD. Based on the engineering judgment of the permit writer, the facility discharge will not contribute to the degradation of its receiving waters. Therefore, there are no additional requirements, beyond the requirements discussed above, proposed in the permit.

XI. ANTIDEGRADATION

A. General

The federal antidegradation policy is designed to protect existing uses and the level of water quality necessary to protect existing uses and provide protection for higher quality waterbodies and outstanding national water resources. The federal policy directs states to adopt a statewide policy that includes the following primary provisions. These provisions have since become used to classify water body quality as Tier 1, Tier 2, or Tier 3 waters (40 CFR 131.12):

1) Existing instream water uses and the level of water quality necessary to protect the existing uses shall be maintained and protected. [Tier 1]
2) Where the quality of waters exceed levels necessary to support propagation of fish, shellfish, and wildlife and recreation in and on the water, that quality shall be maintained and protected unless the State/Tribe finds, after full satisfaction of the intergovernmental coordination and public participation provisions of the State/Tribe's continuing planning process, that allowing lower water quality is necessary to accommodate important economic or social development in the area in which the waters are located. In allowing such degradation or lower water quality, the State shall assure water quality adequate to protect existing uses fully. Further, the State/Tribes shall assure that there shall be achieved the highest statutory and regulatory requirements for all new and existing point sources and all cost-effective and reasonable best management practices for nonpoint source control. [Tier 2]
3) Where high quality waters constitute an outstanding national resource, such as waters of national and State parks and wildlife refuges and waters of exceptional recreational or ecological significance, that water quality shall be maintained and protected. [Tier 3]

B. Antidegradation Analysis

New permits and reissued permits that will increase wasteload limits, incorporate new wasteload limits (either through new WQBEL's or from TMDLs), or new permits that institute wasteload limits are required to go through an antidegradation review process. The EPA conducted a complete antidegradation review for the proposed Choctaw Nation of Oklahoma WWTP-Hochatown permit, which is a new permit, to identify and address potential water quality impacts.

The discharge from the proposed WWTP enters an unnamed tributary on Choctaw Nation tribal trust lands travelling approximately 0.5 miles stream length thence to downstream waters under State of Oklahoma authority, Yashoo Creek. The EPA did not conduct any antidegradation analysis for the unnamed tributary on Choctaw Nation of Oklahoma tribal trust lands because of no available water quality monitoring data and Choctaw Nation of Oklahoma having no EPA approved water quality standards. The EPA only conducted an antidegradation analysis for Yashoo Creek due to its proximity to the outfall and downstream of the outfall. The antidegradation analysis (1) assesses the nature and degree to which the proposed new facility would result in a lowering of Yashoo Creek water quality, 2) determines whether resultant conditions would be protective of Yashoo Creek beneficial uses, and (3) determines whether allowing any potential degradation would be consistent with maximum benefit to the people of Choctaw Nation, given the economic and social benefits of the project, any potential water quality impacts, and the cost and feasibility of alternatives that could prevent or minimize any potential water quality impacts.

a) Impact Assessment

To identify the degree to which Yashoo Creek water quality would potentially be lowered by the proposed facility, EPA calculated the assimilative capacity of the receiving water and the change that would occur with the proposed facility. EPA used a recommended 10% reduction in available assimilative capacity (EPA Memorandum “Tier 2 Antidegradation Reviews and Significant Thresholds”, August 10, 2005) as a significance threshold.

The EPA calculated the change in the assimilative capacity, on a constituent-specific basis (i.e., Dissolved Oxygen), for Yashoo Creek. The assimilative capacity is the concentration increment between the ambient water quality and the water quality standard (WQS). Utilization of assimilative capacity is calculated as the change in constituent concentration downstream of the outfall, which is approximately located just below the confluence of the unnamed tributary and Yashoo Creek, R2, (i.e., conditions because of the proposed facility discharge) divided by the difference between the WQS and R2 (i.e., assimilative capacity under baseline conditions).

The Yashoo Creek water quality under the future permitted discharge capacities (i.e., creek water quality at the downstream R2 station) is represented by a steady-state, mass-

balance of data collected on the discharge effluent and creek at the upstream (R1) monitoring location. The downstream water quality was determined from the following equation:

$$C_{R2} = \frac{(C_{R1} \times Q_{R1} + C_{Effluent} \times Q_{Effluent})}{(Q_{R1} + Q_{Effluent})}$$

Where:

Q_{R1} = Receiving stream critical low flow
$Q_{Effluent}$ = Facility design flow (0.095MGD)
C_{R1} = Parameter concentration at upstream of the outfall
C_{R2} = Parameter concentration at downstream of the outfall
$C_{Effluent}$ = Effluent concentration

To assess the significance of any lowering of the water quality, EPA calculated the change in the assimilative capacity, on a constituent-specific basis, for Yashoo Creek. The available assimilative capacity at baseline condition ($AAC_{Baseline\ condition}$) is the concentration increment between the ambient water quality and the water quality standard (WQS).

Available Assimilative Capacity (AAC) = (WQS – C_{R2}) at baseline condition

The percentage of assimilative capacity used is calculated as the change in downstream constituent concentration, measured at R2, divided by the available assimilative capacity under baseline condition.

% AAC Used = 100 x (C_{R2} Proposed condition - C_{R2} Baseline condition) / $AAC_{Baseline\ condition}$

OWRB conducted a water quality monitoring study for Yashoo Creek during 2010- 2011. The collected data (e.g., flow, dissolved oxygen, temperature, turbidity, pH, ammonia, etc.), some of which (i.e., flow, DO) were used for the antidegradation analysis, are shown in Table 3 below.

Table 3: OWRB Field Monitoring Study Data (2010-2011)

PARAMETERS		June 15, 2010 Data	February 15, 2011 Data
Phaeophytin - Periphyton (attached)	Extractable	20.8 mg/m^3	120 mg/m^3
Lead	Dissolved	0.15 ug/L	---
Specific conductance		200 uS/cm	270 uS/cm
Total hardness	Unfiltered	38 mg/L	54 mg/L
Total Nitrogen, mixed forms	Unfiltered	0.79 mg/L	0.32
Potassium	Total	1.87 ug/L	1.75 ug/L
Magnesium	Total	2.87 ug/L	3.51 ug/L
Chromium	Total	---	1.82 ug/L

Chlorophyll a - Periphyton (attached)	Extractable	5.98 mg/m^3	41.1 mg/m^3
pH		7.45	7.42
Turbidity	Total	10 NTU	8 NTU
Silver	Dissolved	0.08	---
Kjeldahl nitrogen	Total	0.39 mg/L	0.11 mg/L
Cadmium	Dissolved	---	14.2 ug/L
Salinity		0.1 g/L	0.13 g/L
Total dissolved solids		132 mg/L	176 mg/L
Copper	Dissolved	5.7 ug/L	0.83 ug/L
Dissolved oxygen (DO)		10.72 mg/L	12.09 mg/L
Phosphorus	Total	0.054 mg/L	0.017 mg/L
Alkalinity, Phenolphthalein (total hydroxide+1/2 carbonate)	Unfiltered	0 mg/L	0 mg/L
Nickel	Dissolved	1.08 ug/L	1.12 ug/L
Temperature, water		20.3 ºC	7.11 ºC
Iron	Total	947 ug/L	440 ug/L
Total dissolved solids	Dissolved	72 mg/L	88 mg/L
Pheophytin a	Extractable	1.12 mg/m^3	0.69 mg/m^3
Calcium	Total	10.9 ug/L	---
Alkalinity, total		23 mg/L	36 mg/L
Chlorophyll a, corrected for pheophytin	Extractable	1.13 mg/m^3	3.75 mg/m^3
Barium	Total	35.6 ug/L	31.5 ug/L
Sulfate	Unfiltered	---	13.3 mg/L
Sodium	Total	3.27 mg/L	4.58 mg/L
Inorganic nitrogen (nitrate and nitrite)	Unfiltered	0.4 mg/L	0.21 mg/L
Zinc	Dissolved	6.28 ug/L	24.7 ug/L
Ammonia	Unfiltered	0.05 mg/L	0 mg/L
Flow		1.92 cfs	6.16 cfs

The antidegradation analysis defaults to the lowest measurable flow (i.e., the critical condition when there is receiving water quality present to protect). No flow data for upstream of Yashoo Creek is available because the stream is currently not gauged by any agency. Thus, the critical low flow, 7Q2, cannot be determined. For assimilative capacity determination, EPA used the flow data collected during the OWRB monitoring study and a recommended critical low flow of 1 cfs (OAC 785:45-5-12).

Minor facilities are found unlikely to discharge toxic pollutants in amounts that would impact state water quality standards based on EPA's information published as "Evaluation of the presence of Priority Pollutants in the Discharges of Minor POTW's " (June 1996). Yashoo Creek does not have site-specific in-stream water quality standards for BOD_5 or $CBOD_5$, TSS, ammonia, percent removal, oil and grease, etc. No

assimilative capacity determination was done for toxic pollutants nor for parameters having no specific water quality standards. The EPA did an assimilative capacity determination for DO. The results of the analysis indicate Choctaw Nation-Oklahoma WWTP discharge would lower Yashoo Creek water quality more than the EPA recommended 10% assimilative capacity reduction significance threshold for DO for different flows (see Table 4 below). The exceedance of 10 % assimilative capacity reduction significance threshold for DO warrants further analysis. EPA conducted a socioeconomic analysis based on the feasibility study submitted by the Choctaw Nation-Oklahoma to evaluate the justification for lowering the water quality in Yashoo Creek.

Table 4: Percentage of Assimilative Capacity Determination Results

Low Flow (cfs)	Effluent Limits (mg/L)	Plant Design Flow (cfs)	Ambient Parameter Concentration (mg/L)	WQS (mg/L)	Parameter Concentration @ R2 (Baseline) (mg/L)	Parameter Concentration @ R2 (Proposed) (mg/L)	Available Assimilative Capacities (AAC)	% AAC used
1	5	0.6987	10.72	6	10.72	8.3673	-4.7200	49.8457
1.92	5	0.6987	10.72	6	10.72	9.1938	-4.7200	32.3340
6.16	2	0.6987	12.09	6	12.09	11.0621	-6.0900	16.8781

b) Feasibility Evaluation

The State and federal antidegradation policies require the evaluation of alternatives to the proposed project that would reduce or eliminate any potential substantial lowering of water quality. The Choctaw Nation-Oklahoma has been evaluating and planning the new wastewater treatment plant for several years. Several alternatives considered in the Choctaw Nation's planning process would reduce or eliminate the lowering of water quality, for certain constituents, resulting from new development discharge. Each alternative was assessed for feasibility in implementation, its effectiveness and implementation costs. The alternatives evaluated for the antidegradation analysis are:

i. Wastewater Disposal without treatments (WDWT)
ii. Total Retention Lagoon System (TRLS)
iii. Land Application and Lagoon System (LALS)
iv. Flow Through Lagoon System (FTLS)
v. Export wastewater to Broken Bow POTW (BBPOTW)
vi. Mechanical WWTP

Choctaw Nation's planning process eliminated alternatives if the risk for noncompliance with NPDES requirements was unfavorable. In addition, if cost was high or very high with marginally favorable noncompliance risk, then such alternatives were eliminated (i.e., high cost of raw wastewater export to BBPOTW). The cost and infeasibility of treatment systems led to Choctaw Nation of Oklahoma adoption of a mechanical WWTP as the proposed project.

1. Nonviable Alternatives

The WDWT, TRLS, LALS and FTLS are not considered as viable alternatives for treating new development's wastewater due to noncompliance issues, local weather conditions, lack of a suitable application sites, and insufficiently wastewater treatment performance, respectively. Wastewater disposal without treatments would violate EPA regulations involving discharge of wastewater into the environment. In McCurtain County, OK, the 90th percentile annual precipitation of 67.41 inches exceeds the average pan evaporation rate of 65 inches (OAC 252:656-11-2). This leaves no ability to reliably dispose of the excess wastewater flows created by the new development thru using a TRLS, whose primary function is to use evaporation to remove wastewater. LALS cannot be applied to treat wastewater from the new development since there are no suitable application sites locally for a land application system. The available land owned by the Choctaw Nation of Oklahoma and adjacent to the proposed Resort is hilly with slopes of 12-20 percent. These are not suitable for a land application system due to increased runoff rates (OAC 252:627-3). Meanwhile, the flow through lagoon system which provides facultative lagoon treatment will not be able to sufficiently to treat effluent to meet the imposed effluent permit limits needed to discharge to a receiving stream. It can only provide discharge effluent concentrations of 30 mg/L BOD and 90 mg/L TSS. Choctaw Nation of Oklahoma did not conduct any further evaluations (i.e., costs and other impacts) for these alternatives since they are not viable.

2. Viable Alternatives

The closest centralized wastewater treatment and disposal system is in Broken Bow, approximately 9.6 miles south of the resort site. A viable alternative is to export the new development's wastewater to existing Broken Bow Publicly Owned Treatment Works (BBPOTW). This would have the ability to eliminate any potential lowering of water quality in Yashoo Creek. Choctaw Nation of Oklahoma evaluated multiple routes to convey wastewater generated from the proposed development site to BBPOTW via conventional gravity sanitary sewer lines and lift stations for treatment and discharge into an unnamed tributary of Yanubbee Creek. Additional flow/loading impact on the existing BBPOTW was also evaluated. Project costs have been calculated to varying degrees of detail. Estimated costs of construction for the various conveyance schemes/options ranged from $8.1 million up to $38.6 million.

Another considered viable alternative is to construct a mechanical wastewater treatment plant to treat the wastewater produced from the proposed resort. The proposed wastewater treatment plant will be consisted of headworks equipped with bar screens, flow equalization basin, influent/effluent flow measurements, a splitter box, 2 aeration basins, 2 secondary clarifiers, 2 aerobic digesters, 2 dewatering boxes, 2 UV channels and post aeration. Estimate costs of construction for the proposed Choctaw Nation of Oklahoma WWTP- Hochatown is approximately $6.1 million.

Using a mechanical treatment plant in comparing to having wastewater export to BBPOTW is the most cost-effective method for treatment of wastewater produced by the new development. The proposed mechanical treatment plant offers a treatment process, takes up minimum space and treats wastewater to a higher effluent quality level than compared to non-mechanical means. Furthermore, having BBPOTW treat new development's wastewater to eliminate any incremental degradation of water quality in Yashoo Creek would not eliminate the need to meet water quality objectives in another surface water body, may not reduce loadings to downstream portions of the watershed. For instance, the addition of 0.095 MGD new development flow to the BBPOTW discharge, having a design flow of 1MGD, would require improvements to the BBPOTW and potentially result in lowering of water quality of the unnamed tributary of Yanubbee Creek, which is a tributary of the Little River.

c) Socioeconomic Considerations

The Choctaw Nation of Oklahoma plans to construct a new Casino/Resort near Hochatown Oklahoma. The project will also include amenities such as a fueling station, convenience store and exterior entertainment venue. The new development would accommodate planned and approved growth in the area by creating jobs for both Tribal and non-tribal residents in the area and ultimately improving quality of life and standard of living. Such growth strengthens the economic status (via tax basis, etc.) of the township and County, and provides improved community services and retail benefits to Tribal and non-tribal residents. The areas including McCurtain County and its surrounding counties have a combined population of 192,871 with a total regional employment number of 79,100. Over the last five years jobs have decreased by 2,103. It is anticipated the new development will create numerous new jobs for the areas. Specifically, an estimate of 2,012 jobs in various trades generating $79 million in wages and benefits will be created during the resort construction. When completed, the resort is anticipated to create 347 full time positions within the Choctaw Nation, which are projected to generate an annual payroll of $13.5 million along with benefits and 187 additional indirect jobs in the area, which are projected to generate an additional $5.5 million in wages and benefits to the area.

Hochatown currently is an unincorporated rural community, with no centralized governing body. The Hochatown area has no centralized wastewater collection and disposal system. The new development cannot provide these opportunities without the ability to collect, treat and dispose of wastewater.

d) Antidegradation Analysis Findings

The extent of water quality impacts from the proposed Choctaw Nation of Oklahoma WWTP-Hochatown project were primarily assessed based on cumulative assimilative capacity utilization – on a mass balance (concentration-based) approach for dissolved oxygen parameter. The use of available assimilative capacity for DO constituent exceeds

the EPA recommended threshold for a detailed review of the socioeconomic benefits of the proposed project regarding the lowering of Yashoo Creek water quality.

Wastewater components with potential to affect DO concentrations include biochemical oxygen demand/carbonaceous biochemical oxygen demand (BOD/CBOD) and ammonia. In aquatic environments, DO is reduced as BOD/CBOD is introduced/increased, or through oxidation of ammonia to nitrite and nitrate. Re-aeration of downstream waters due to physical processes and photosynthesis tends to offset the oxygen demand of effluent as it flows downstream. The proposed facility discharge could potentially lower Yashoo Creek's water quality with respect to DO in the future. To ensure no excursion of downstream State's DO water quality standards for the cool water aquatic community designated use, the proposed NPDES permit contains the following limitations in Table 5 for carbonaceous biochemical oxygen demand ($CBOD_5$), ammonia, as nitrogen (NH_3-N), and DO.

Table 5: Effluent Limitation

Season	**$CBOD_5$**	**NH_3-N**	**DO (minimum)**
Summer (Jun 1 – Oct 15)	15.0 mg/L	7.0 mg/L (2)	5.0 mg/L
Spring (Mar 1 – May 31)	18.0 mg/L	12.0 mg/L (2)	6.0 mg/L
Winter (Oct 16 – Feb 28)	25.0 mg/L (1)	15.4 mg/L (2)	2.0 mg/L

Footnotes:

(1) The secondary treatment TBEL of 18 mg/L $CBOD_5$ for a discharge to an unnamed tributary is more stringent than the Winter limit of 25.0 mg/L. EPA proposes limits for $CBOD_5$ of 15.0 mg/L (Summer), 18.0 mg/L (Spring), and 18.0 mg/L (Winter).

(2) The NH_3-N concentrations based on stream segment specific WQS are more stringent than DO-based monthly average ammonia limits of 7 mg/L (Summer), 12 mg/L (Spring), and 15.4 mg/L (Winter). Mass loadings will be recalculated based on the more stringent concentrations. See Part V.2.b above.

Choctaw Nation-Oklahoma has been examining several designing options for the proposed facility to ensure that the proposed WWTP will, at the minimum, comply with the proposed NPDES permit limitations for DO, $CBOD_5$ and NH_3-N. Because future expected operations of the plant will achieve compliance with NPDES permit requirements, thereby assuring a water quality nuisance will not occur, EPA does not believe that the cool water aquatic community beneficial uses will be adversely affected by the proposed facility.

The objective of the socioeconomic analysis is to determine if the lowering of Yashoo Creek water quality is in the maximum interest of Tribal and non-tribal members. The socioeconomic evaluation considered the social benefits and costs based on the ability to accommodate socioeconomic development. Given the current infrastructure, future development of destination resort would rely on Tribal's WWTP for wastewater collection and treatment. Should the changes in Yashoo Creek water quality characterized herein be disallowed, such action would: (1) force future developments in the area to find alternative methods for disposing of wastewater or (2) prohibit planned and approved development within and adjacent to the area. The EPA believes, on balance, allowing the

minor water quality degradation of Yashoo Creek is in the best interest of the people in the area compared to evaluated alternatives.

Based on the assessment contained herein, it is determined that the proposed WWTP discharge will meet both required TBELs and WQBLs necessary to assure that a water quality nuisance will not occur and that beneficial uses are fully protected. The DO degradation in the receiving water that will occur because of the proposed facility discharge will not cause that water body to exceed applicable water quality objectives and would accommodate important socioeconomic development in the area while maintaining full protection of the beneficial uses of Yashoo Creek year-round. An evaluation of several alternatives to determine their effects on water quality impacts and their ability to provide beneficial use protection did not identify any feasible alternative control measures that would more effectively maximize the interest of the Tribal and non-tribal members and accommodate the planned growth in the area, compared to the proposed project.

Based on the analysis contained herein, the anticipated water quality changes in Yashoo Creek are consistent with the state and federal antidegradation policies, provide important socioeconomic benefit to Tribal and non-tribal members, and will not result in water quality less than that prescribed in the policies, required to prevent a nuisance, or required to protect beneficial uses.

XII. EVIRONMENTAL JUSTICE

Executive Order 13985, Advancing Racial Equity and Supporting for Underserved Communities through the Federal Government signed on January 20, 2021, directs each federal agency to "make achieving environmental justice part of its mission by identifying and addressing, as appropriate, disproportionately high and adverse human health or environmental effects of its programs, policies, and activities." The EPA strives to enhance the ability of overburdened communities to participate fully and meaningfully in the permitting process for EPA-issued permits, including NPDES permits. "Overburdened" communities can include minority, low-income, tribal, and indigenous populations or communities that potentially experience disproportionate environmental harms and risks. As part of an agency-wide effort, EPA Region 6 will consider prioritizing enhanced public involvement opportunities for EPA-issued permits that may involve activities with significant public health or environmental impacts on already overburdened communities. For more information, please visit http://www.epa.gov/ejscreen.

As a part of the permit development process, EPA conducted a screening analysis to determine whether this Permit action could affect overburdened communities. The EPA used a nationally consistent geospatial tool that contains demographic and environmental

data for the United States at the Census block group level. This tool is used to identify permits for which enhanced outreach may be warranted.

The EPA selected a study area at the proposed discharge, 9-miles downstream of Yashoo Creek and a buffer of 3-miles around the creek. The EJ Screen score for the facility was at the 77th percentile, which is below the 80-percentile cut-off for engaging in enhanced outreach around the availability of the draft permit for review and comment (see Appendix 3). Therefore, the Choctaw Nation of Oklahoma WWTP-Hochatown is not considered to be discharging in a potential EJ community and no enhanced outreach is necessary at this time.

XIII. ENDANGERED SPECIES CONSIDERATIONS

The clearance forms dated June 25, 2021, and July 23, 2021from Choctaw Nation of Oklahoma Environmental Protection Services indicates that no potential significant adverse impacts to biological resources are anticipated from the proposed project.

XIV. HISTORICAL and ARCHEOLOGICAL PRESERVATION CONSIDERATIONS

The Jane 28, 2021, clearance letter from the Choctaw Nation of Oklahoma Historic Preservation indicates that no potential significant adverse impacts to archaeological, historical, architectural, or cultural resources are anticipated from the proposed project.

XV. PERMIT REOPENER

The permit may be reopened and modified during the life of the permit if relevant procedures implementing the Water Quality Standards are either revised or promulgated by the Oklahoma Department Environmental Quality, or Choctaw Nation of Oklahoma obtains treatment same as state and develops Tribal Water Quality Standards. Should Choctaw Nation of Oklahoma or the State adopt a tribal/state water quality standard, and/or develop or amend a TMDL, this permit may be reopened to establish effluent limitations for the parameter(s) to be consistent with that approved State standard and/or water quality management plan, in accordance with 40 CFR §122.44(d). Modification of the permit is subject to the provisions of 40 CFR §124.5.

XVI. CERTIFICATION

The Environmental Protection Agency has made a tentative determination to issue a first-time permit for the discharge described in the application. Permit requirements are based on NPDES regulations (40 CFR Parts 122 and 124). The permit is in the process of certification by EPA Region 6 since Choctaw Nation of Oklahoma does not have authorization to be treated in a similar manner as a state (TAS) for water quality

standards. EPA intends to certify without conditions the draft permit proposed and will also accept comments on EPA's CWA 401 Certification of the permit. A draft permit and draft public notice will be sent to the District Engineer, Corps of Engineers, U.S. Department of Agriculture, Rural Development, and to the Regional Director of the U.S. Fish and Wildlife Service prior to the publication of that notice.

XVII. FINAL DETERMINATION

The public notice describes the procedures for the formulation of final determinations.

XVIII. ADMINISTRATIVE RECORD

The following information was used to develop the proposed permit:

A. APPLICATION(s)

EPA Application Forms 2A and 2S were received on November 08, 2021.

B. 40 CFR CITATIONS

§§ 122, 124, 125, 127, 131, 133, 136

C. STATE OF OKLAHOMA REFERENCES

Oklahoma Pollutant Discharge Elimination System (OPDES) Act, 27A O.S. Supp. 2000, §2-6-201 et seq.

Oklahoma's Water Quality Standards, Oklahoma Administrative Code (OAC 785:45), September 13, 2020, as amended.

Oklahoma's Water Quality Standards, Oklahoma Administrative Code (OAC 785:46), September 13, 2020, as amended.

Oklahoma Administrative Code (OAC) 252:606 and OAC 252:690.

Oklahoma Continuing Planning Process Document (CPP), December 2012 ed.

State of Oklahoma 2020 303(d) List of Impaired Waters, Appendix C.

Oklahoma Department Environmental Quality Draft Wasteload Allocation Report for McCurtain County Rural Water District #5, October 2018

D. MISCELLANEOUS REFERENCES

EPA Region 6 "Policy for Post Third Round NPDES Permitting" and "Post Third Round NPDES Permit Implementation Strategy," October 1, 1992.

EPA Memorandum “Tier 2 Antidegradation Reviews and Significant Thresholds”, August 10, 2005

Trust Deed signed and delivered August 5, 2019, by Gary Batton, Chief, the Choctaw Nation of Oklahoma, providing proof that the both the proposed plant and discharge point are located on Choctaw Nation Tribal land

Choctaw Nation of Oklahoma-Historic Preservation letter (LAT land Reserve for construction of wastewater facility for the new Choctaw Nation of Oklahoma Hochatown Resort (McCurtain County, OK, 34.149486, -94.740619), June 28, 2021

United States Department of the Interior- Fish and Wildlife Service – Online Project Review Concurrence Letter, May 04, 2021

Choctaw Nation of Oklahoma-Environmental Protection Services – Environmental Desktop Review Pass/Fail Form, signed by Kimberley Merryman, June 25, 2021

Choctaw Nation of Oklahoma - Technical Memorandum Wastewater Feasibility Study, Project No. 2111, June 22, 2021

Choctaw Nation of Oklahoma-Environmental Protection Services – Environmental Desktop Review Pass/Fail Form, signed by Megan R. McBride, July 23, 2021

Technical Memorandum – Wastewater Disposal Alternative Analysis for Proposed Hochatown Oklahoma Development prepared for Choctaw Nation Utility Authority & Choctaw Nation of Oklahoma, Barker & Associates, Inc., March 2022

Choctaw Nation of Oklahoma – Economic Impact Choctaw Resort, Hochatown, Impact Scenario, March 2022

Appendix 1


Cem
Hochatown
675
1
700
259
PROPOSED WASTEWATER TREATMENT
DISCHARGE POINT
LAT; N34° 08' 45.8760"
LONG; W94° 44' 26.8761"
UNNAMED TRIBUTARY
A
259
667
YASHUA CREEK
700
680
LEGAL:
FACILITY: S/2, SE/4, NE/4 OF SECTION 1, T-5-S, R-24-E, I.M., McCURTAIN COUNTY, OKLAHOMA
DISCHARGE; N/E/4, SE/4OF SECTION 1, T-5-S, R-24-E, I.M., McCURTAIN COUNTY, OKLAHOMA
HOCHATOWN
PROPOSED WWTP PLAN
EXHIBIT 1
10/12/2021
SCALE: 1" = 500'
PREPARED BY:
Parker & Associates
3900 University Blvd.
Durant OK 74701
580.931.9245
OK. CA. 3592
EXP. 06/30/2022

Appendix 2 – Modeling Results

DESKTOP WASTELOAD ANALYSIS - SUMMER

Choctaw Nation of Oklahoma

PROPOSED PERMIT FLOW =	0.095	MGD		1.0	CFS UPSTREAM FLOW					PROPOSED PERMIT FLOW =	0.095	MGD		0.0	CFS UPSTREAM FLOW				
				29	° C TEMPERATURE									29	° C TEMPERATURE				
INITIAL CONDITIONS ARE AS FOLLOWS.....										INITIAL CONDITIONS ARE AS FOLLOWS.....									
REACH LENGTH (MILES):	6.80									REACH LENGTH (MILES):	6.80								
NUMBER OF SEGMENTS:	40		STREAM VELOCITY:	6.15	MILES/DAY					NUMBER OF SEGMENTS:	40		STREAM VELOCITY:	6.15	MILES/DAY				
NUMBER OF REACHES:	1		STREAM DEPTH:	0.28	FEET					NUMBER OF REACHES:	1		STREAM DEPTH:	0.28	FEET				
REACH NUMBER:	1		REACH CL CONC:	150.0	MG/L					REACH NUMBER:	1		REACH CL CONC:	150.0	MG/L				
BODU/CBOD5 RATIO:	2.30		D.O. SATURATION:	7.67	MG/L					BODU/CBOD5 RATIO:	2.30		D.O. SATURATION:	7.67	MG/L				
NODU/CBOD5 RATIO:	4.30		D.O. TARGET:	6.00	MG/L					NODU/CBOD5 RATIO:	4.30		D.O. TARGET:	2.00	MG/L				
EFFLUENT FLOW:	0.10	MGD	UPSTREAM FLOW:	0.65	MGD					EFFLUENT FLOW:	0.10	MGD	UPSTREAM FLOW:	0.65	MGD				
EFFLUENT CBOD5:	15.0	MG/L	UPSTREAM CBOD5:	2.00	MG/L					EFFLUENT CBOD5:	15.0	MG/L	UPSTREAM CBOD5:	2.00	MG/L				
EFFLUENT NH3N:	7.0	MG/L	UPSTREAM NH3N:	0.15	MG/L					EFFLUENT NH3N:	7.0	MG/L	UPSTREAM NH3N:	0.15	MG/L				
EFFLUENT D.O.:	5.0	MG/L	UPSTREAM D.O.:	6.90	MG/L					EFFLUENT D.O.:	5.0	MG/L	UPSTREAM D.O.:	6.90	MG/L				
RATE CONSTANTS(1/DAY, BASE E)			20 DEGREES	29	DEGREES	THETA				RATE CONSTANTS(1/DAY, BASE E)			20 DEGREES	29	DEGREES	THETA			
K1:			0.30	0.45		1.047				K1:			0.30	0.45		1.047			
K2:	TURNEY-HARRIS		15.01	18.58		1.024				K2:	TURNEY-HARRIS		15.01	18.58		1.024			
KN:			0.30	0.57		1.073				KN:			0.30	0.57		1.073			
KS:			0.03	0.04		1.024				KS:			0.03	0.04		1.024			
SOD	(G/FT2/DAY):		0.07	0.11		1.060				SOD	(G/FT2/DAY):		0.07	0.11		1.060			
RESULTS ARE AS FOLLOWS....										RESULTS ARE AS FOLLOWS....									

DISTANCE (MILES)	CBOD5 (MG/L)	ULT BOD (MG/L)	NH3-N (MG/L)	ULT NOD (MG/L)	D.O. (MG/L)	FLOW (MGD)	DISTANCE (MILES)	CBOD5 (MG/L)	ULT BOD (MG/L)	NH3-N (MG/L)	ULT NOD (MG/L)	D.O. (MG/L)	FLOW (MGD)
0.00	3.67	8.43	1.03	4.42	6.66	0.74	0.00	3.67	8.43	1.03	4.42	6.66	0.74
0.17	3.62	8.32	1.01	4.35	6.63	0.74	0.17	3.62	8.32	1.01	4.35	6.63	0.74
0.34	3.57	8.21	1.00	4.29	6.61	0.74	0.34	3.57	8.21	1.00	4.29	6.61	0.74
0.51	3.52	8.10	0.98	4.22	6.60	0.74	0.51	3.52	8.10	0.98	4.22	6.60	0.74
0.68	3.47	7.99	0.97	4.15	6.60	0.74	0.68	3.47	7.99	0.97	4.15	6.60	0.74
0.85	3.43	7.88	0.95	4.09	6.60	0.74	0.85	3.43	7.88	0.95	4.09	6.60	0.74
1.02	3.38	7.77	0.94	4.03	6.60	0.74	1.02	3.38	7.77	0.94	4.03	6.60	0.74
1.19	3.33	7.67	0.92	3.96	6.60	0.74	1.19	3.33	7.67	0.92	3.96	6.60	0.74
1.36	3.29	7.57	0.91	3.90	6.60	0.74	1.36	3.29	7.57	0.91	3.90	6.60	0.74
1.53	3.25	7.46	0.89	3.84	6.61	0.74	1.53	3.25	7.46	0.89	3.84	6.61	0.74
1.70	3.20	7.36	0.88	3.78	6.61	0.74	1.70	3.20	7.36	0.88	3.78	6.61	0.74
1.87	3.16	7.26	0.87	3.72	6.62	0.74	1.87	3.16	7.26	0.87	3.72	6.62	0.74
2.04	3.12	7.17	0.85	3.66	6.62	0.74	2.04	3.12	7.17	0.85	3.66	6.62	0.74
2.21	3.07	7.07	0.84	3.61	6.62	0.74	2.21	3.07	7.07	0.84	3.61	6.62	0.74
2.38	3.03	6.97	0.83	3.55	6.63	0.74	2.38	3.03	6.97	0.83	3.55	6.63	0.74
2.55	2.99	6.88	0.81	3.50	6.63	0.74	2.55	2.99	6.88	0.81	3.50	6.63	0.74
2.72	2.95	6.79	0.80	3.44	6.64	0.74	2.72	2.95	6.79	0.80	3.44	6.64	0.74
2.89	2.91	6.70	0.79	3.39	6.64	0.74	2.89	2.91	6.70	0.79	3.39	6.64	0.74
3.06	2.87	6.61	0.78	3.34	6.64	0.74	3.06	2.87	6.61	0.78	3.34	6.64	0.74
3.23	2.83	6.52	0.76	3.28	6.65	0.74	3.23	2.83	6.52	0.76	3.28	6.65	0.74
3.40	2.80	6.43	0.75	3.23	6.65	0.74	3.40	2.80	6.43	0.75	3.23	6.65	0.74
3.57	2.76	6.34	0.74	3.18	6.66	0.74	3.57	2.76	6.34	0.74	3.18	6.66	0.74
3.74	2.72	6.26	0.73	3.13	6.66	0.74	3.74	2.72	6.26	0.73	3.13	6.66	0.74
3.91	2.68	6.17	0.72	3.09	6.66	0.74	3.91	2.68	6.17	0.72	3.09	6.66	0.74
4.08	2.65	6.09	0.71	3.04	6.67	0.74	4.08	2.65	6.09	0.71	3.04	6.67	0.74
4.25	2.61	6.01	0.70	2.99	6.67	0.74	4.25	2.61	6.01	0.70	2.99	6.67	0.74
4.42	2.58	5.93	0.68	2.94	6.67	0.74	4.42	2.58	5.93	0.68	2.94	6.67	0.74
4.59	2.54	5.85	0.67	2.90	6.68	0.74	4.59	2.54	5.85	0.67	2.90	6.68	0.74
4.76	2.51	5.77	0.66	2.85	6.68	0.74	4.76	2.51	5.77	0.66	2.85	6.68	0.74
4.93	2.47	5.69	0.65	2.81	6.68	0.74	4.93	2.47	5.69	0.65	2.81	6.68	0.74
5.10	2.44	5.61	0.64	2.77	6.69	0.74	5.10	2.44	5.61	0.64	2.77	6.69	0.74
5.27	2.41	5.54	0.63	2.72	6.69	0.74	5.27	2.41	5.54	0.63	2.72	6.69	0.74
5.44	2.38	5.46	0.62	2.68	6.69	0.74	5.44	2.38	5.46	0.62	2.68	6.69	0.74
5.61	2.34	5.39	0.61	2.64	6.70	0.74	5.61	2.34	5.39	0.61	2.64	6.70	0.74
5.78	2.31	5.32	0.60	2.60	6.70	0.74	5.78	2.31	5.32	0.60	2.60	6.70	0.74
5.95	2.28	5.25	0.59	2.56	6.70	0.74	5.95	2.28	5.25	0.59	2.56	6.70	0.74
6.12	2.25	5.17	0.59	2.52	6.71	0.74	6.12	2.25	5.17	0.59	2.52	6.71	0.74
6.29	2.22	5.10	0.58	2.48	6.71	0.74	6.29	2.22	5.10	0.58	2.48	6.71	0.74
6.46	2.19	5.04	0.57	2.44	6.71	0.74	6.46	2.19	5.04	0.57	2.44	6.71	0.74
6.63	2.16	4.97	0.56	2.40	6.71	0.74	6.63	2.16	4.97	0.56	2.40	6.71	0.74
6.80	2.13	4.90	0.55	2.37	6.72	0.74	6.80	2.13	4.90	0.55	2.37	6.72	0.74

Appendix 2 – Modeling Results (Cont'd)

DESKTOP WASTELOAD ANALYSIS - SPRING

Choctaw Nation of Oklahoma

PROPOSED PERMIT FLOW =	0.095	MGD		1.0	CFS UPSTREAM FLOW						PROPOSED PERMIT FLOW =	0.095	MGD		0.0	CFS UPSTREAM FLOW				
				22	° C TEMPERATURE										22	° C TEMPERATURE					
INITIAL CONDITIONS ARE AS FOLLOWS.....											INITIAL CONDITIONS ARE AS FOLLOWS.....										
REACH LENGTH (MILES):	6.80			STREAM VELOCITY:	6.15	MILES/DAY					REACH LENGTH (MILES):	6.80			STREAM VELOCITY:	6.15	MILES/DAY				
NUMBER OF SEGMENTS:	40			STREAM DEPTH:	0.28	FEET					NUMBER OF SEGMENTS:	40			STREAM DEPTH:	0.28	FEET				
NUMBER OF REACHES:	1			REACH CL CONC:	150.0	MG/L					NUMBER OF REACHES:	1			REACH CL CONC:	150.0	MG/L				
REACH NUMBER:	1			D.O. SATURATION:	8.72	MG/L					REACH NUMBER:	1			D.O. SATURATION:	8.72	MG/L				
BODU/CBOD5 RATIO:	2.30			D.O. TARGET:	7.00	MG/L					BODU/CBOD5 RATIO:	2.30			D.O. TARGET:	2.00	MG/L				
NODU/CBOD5 RATIO:	4.30										NODU/CBOD5 RATIO:	4.30									
EFFLUENT FLOW:	0.10	MGD		UPSTREAM FLOW:	0.65	MGD					EFFLUENT FLOW:	0.10	MGD		UPSTREAM FLOW:	0.65	MGD				
EFFLUENT CBOD5:	18.0	MG/L		UPSTREAM CBOD5:	2.00	MG/L					EFFLUENT CBOD5:	18.0	MG/L		UPSTREAM CBOD5:	2.00	MG/L				
EFFLUENT NH3N:	12.0	MG/L		UPSTREAM NH3N:	0.15	MG/L					EFFLUENT NH3N:	12.0	MG/L		UPSTREAM NH3N:	0.15	MG/L				
EFFLUENT D.O.:	6.0	MG/L		UPSTREAM D.O.:	7.85	MG/L					EFFLUENT D.O.:	6.0	MG/L		UPSTREAM D.O.:	7.85	MG/L				
RATE CONSTANTS(1/DAY, BASE E)				20 DEGREES	22	DEGREES	THETA				RATE CONSTANTS(1/DAY, BASE E)				20 DEGREES	22	DEGREES	THETA			
K1:				0.30	0.33		1.047				K1:				0.30	0.33		1.047			
K2:	TURNEY-HARRIS			15.01	15.73		1.024				K2:	TURNEY-HARRIS			15.01	15.73		1.024			
KN:				0.30	0.35		1.073				KN:				0.30	0.35		1.073			
KS:				0.03	0.03		1.024				KS:				0.03	0.03		1.024			
SOD		(G/FT2/DAY):		0.08	0.09		1.060				SOD		(G/FT2/DAY):		0.08	0.09		1.060			
RESULTS ARE AS FOLLOWS....											RESULTS ARE AS FOLLOWS....										

DISTANCE (MILES)	CBOD5 (MG/L)	ULT BOD (MG/L)	NH3-N (MG/L)	ULT NOD (MG/L)	D.O. (MG/L)	FLOW (MGD)	DISTANCE (MILES)	CBOD5 (MG/L)	ULT BOD (MG/L)	NH3-N (MG/L)	ULT NOD (MG/L)	D.O. (MG/L)	FLOW (MGD)
0.00	4.05	9.32	1.67	7.18	7.61	0.74	0.00	4.05	9.32	1.67	7.18	7.61	0.74
0.17	4.01	9.23	1.65	7.11	7.62	0.74	0.17	4.01	9.23	1.65	7.11	7.62	0.74
0.34	3.97	9.13	1.64	7.04	7.63	0.74	0.34	3.97	9.13	1.64	7.04	7.63	0.74
0.51	3.93	9.04	1.62	6.97	7.63	0.74	0.51	3.93	9.04	1.62	6.97	7.63	0.74
0.68	3.89	8.95	1.61	6.91	7.64	0.74	0.68	3.89	8.95	1.61	6.91	7.64	0.74
0.85	3.85	8.87	1.59	6.84	7.64	0.74	0.85	3.85	8.87	1.59	6.84	7.64	0.74
1.02	3.82	8.78	1.58	6.78	7.65	0.74	1.02	3.82	8.78	1.58	6.78	7.65	0.74
1.19	3.78	8.69	1.56	6.71	7.65	0.74	1.19	3.78	8.69	1.56	6.71	7.65	0.74
1.36	3.74	8.60	1.55	6.65	7.66	0.74	1.36	3.74	8.60	1.55	6.65	7.66	0.74
1.53	3.70	8.52	1.53	6.59	7.66	0.74	1.53	3.70	8.52	1.53	6.59	7.66	0.74
1.70	3.67	8.43	1.52	6.52	7.66	0.74	1.70	3.67	8.43	1.52	6.52	7.66	0.74
1.87	3.63	8.35	1.50	6.46	7.67	0.74	1.87	3.63	8.35	1.50	6.46	7.67	0.74
2.04	3.59	8.27	1.49	6.40	7.67	0.74	2.04	3.59	8.27	1.49	6.40	7.67	0.74
2.21	3.56	8.19	1.47	6.34	7.67	0.74	2.21	3.56	8.19	1.47	6.34	7.67	0.74
2.38	3.52	8.10	1.46	6.28	7.68	0.74	2.38	3.52	8.10	1.46	6.28	7.68	0.74
2.55	3.49	8.02	1.45	6.22	7.68	0.74	2.55	3.49	8.02	1.45	6.22	7.68	0.74
2.72	3.45	7.94	1.43	6.16	7.68	0.74	2.72	3.45	7.94	1.43	6.16	7.68	0.74
2.89	3.42	7.87	1.42	6.10	7.68	0.74	2.89	3.42	7.87	1.42	6.10	7.68	0.74
3.06	3.39	7.79	1.41	6.04	7.69	0.74	3.06	3.39	7.79	1.41	6.04	7.69	0.74
3.23	3.35	7.71	1.39	5.99	7.69	0.74	3.23	3.35	7.71	1.39	5.99	7.69	0.74
3.40	3.32	7.63	1.38	5.93	7.69	0.74	3.40	3.32	7.63	1.38	5.93	7.69	0.74
3.57	3.29	7.56	1.37	5.87	7.70	0.74	3.57	3.29	7.56	1.37	5.87	7.70	0.74
3.74	3.25	7.48	1.35	5.82	7.70	0.74	3.74	3.25	7.48	1.35	5.82	7.70	0.74
3.91	3.22	7.41	1.34	5.76	7.70	0.74	3.91	3.22	7.41	1.34	5.76	7.70	0.74
4.08	3.19	7.34	1.33	5.71	7.70	0.74	4.08	3.19	7.34	1.33	5.71	7.70	0.74
4.25	3.16	7.26	1.31	5.65	7.71	0.74	4.25	3.16	7.26	1.31	5.65	7.71	0.74
4.42	3.13	7.19	1.30	5.60	7.71	0.74	4.42	3.13	7.19	1.30	5.60	7.71	0.74
4.59	3.10	7.12	1.29	5.55	7.71	0.74	4.59	3.10	7.12	1.29	5.55	7.71	0.74
4.76	3.07	7.05	1.28	5.49	7.72	0.74	4.76	3.07	7.05	1.28	5.49	7.72	0.74
4.93	3.03	6.98	1.27	5.44	7.72	0.74	4.93	3.03	6.98	1.27	5.44	7.72	0.74
5.10	3.00	6.91	1.25	5.39	7.72	0.74	5.10	3.00	6.91	1.25	5.39	7.72	0.74
5.27	2.97	6.84	1.24	5.34	7.72	0.74	5.27	2.97	6.84	1.24	5.34	7.72	0.74
5.44	2.95	6.77	1.23	5.29	7.73	0.74	5.44	2.95	6.77	1.23	5.29	7.73	0.74
5.61	2.92	6.71	1.22	5.24	7.73	0.74	5.61	2.92	6.71	1.22	5.24	7.73	0.74
5.78	2.89	6.64	1.21	5.19	7.73	0.74	5.78	2.89	6.64	1.21	5.19	7.73	0.74
5.95	2.86	6.57	1.19	5.14	7.73	0.74	5.95	2.86	6.57	1.19	5.14	7.73	0.74
6.12	2.83	6.51	1.18	5.09	7.74	0.74	6.12	2.83	6.51	1.18	5.09	7.74	0.74
6.29	2.80	6.45	1.17	5.04	7.74	0.74	6.29	2.80	6.45	1.17	5.04	7.74	0.74
6.46	2.77	6.38	1.16	4.99	7.74	0.74	6.46	2.77	6.38	1.16	4.99	7.74	0.74
6.63	2.75	6.32	1.15	4.95	7.74	0.74	6.63	2.75	6.32	1.15	4.95	7.74	0.74
6.80	2.72	6.26	1.14	4.90	7.75	0.74	6.80	2.72	6.26	1.14	4.90	7.75	0.74

Appendix 2 – Modeling Results (Cont'd)

DESKTOP WASTELOAD ANALYSIS - WINTER

Choctaw Nation of Oklahoma

PROPOSED PERMIT FLOW =		0.095	MGD		1.0	CFS UPSTREAM FLOW						PROPOSED PERMIT FLOW =		0.095	MGD		0.0	CFS UPSTREAM FLOW					
					18	° C TEMPERATURE											18	° C TEMPERATURE					
INITIAL CONDITIONS ARE AS FOLLOWS.....												INITIAL CONDITIONS ARE AS FOLLOWS.....											
REACH LENGTH (MILES):			6.80									REACH LENGTH (MILES):			6.80								
NUMBER OF SEGMENTS:			40		STREAM VELOCITY:			6.15	MILES/DAY			NUMBER OF SEGMENTS:			40		STREAM VELOCITY:			6.15	MILES/DAY		
NUMBER OF REACHES:			1		STREAM DEPTH:			0.28	FEET			NUMBER OF REACHES:			1		STREAM DEPTH:			0.28	FEET		
REACH NUMBER:			1		REACH CL CONC:			150.0	MG/L			REACH NUMBER:			1		REACH CL CONC:			150.0	MG/L		
BODU/CBOD5 RATIO:			2.30		D.O. SATURATION:			9.45	MG/L			BODU/CBOD5 RATIO:			2.30		D.O. SATURATION:			9.45	MG/L		
NODU/CBOD5 RATIO:			4.30		D.O. TARGET:			6.00	MG/L			NODU/CBOD5 RATIO:			4.30		D.O. TARGET:			2.00	MG/L		
EFFLUENT FLOW:			0.10	MGD		UPSTREAM FLOW:			0.65	MGD		EFFLUENT FLOW:			0.10	MGD		UPSTREAM FLOW:			0.65	MGD	
EFFLUENT CBOD5:			25.0	MG/L		UPSTREAM CBOD5:			2.00	MG/L		EFFLUENT CBOD5:			25.0	MG/L		UPSTREAM CBOD5:			2.00	MG/L	
EFFLUENT NH3N:			15.4	MG/L		UPSTREAM NH3N:			0.15	MG/L		EFFLUENT NH3N:			15.4	MG/L		UPSTREAM NH3N:			0.15	MG/L	
EFFLUENT D.O.:			2.0	MG/L		UPSTREAM D.O.:			8.51	MG/L		EFFLUENT D.O.:			2.0	MG/L		UPSTREAM D.O.:			8.51	MG/L	
RATE CONSTANTS(1/DAY, BASE E)					20 DEGREES			18	DEGREES		THETA	RATE CONSTANTS(1/DAY, BASE E)					20 DEGREES			18	DEGREES		THETA
	K1:				0.30			0.27			1.047		K1:				0.30			0.27			1.047
	K2:	TURNEY-HARRIS			15.01			14.31			1.024		K2:	TURNEY-HARRIS			15.01			14.31			1.024
	KN:				0.30			0.26			1.073		KN:				0.30			0.26			1.073
	KS:				0.05			0.05			1.024		KS:				0.05			0.05			1.024
	SOD	(G/FT2/DAY):			0.10			0.09			1.060		SOD	(G/FT2/DAY):			0.10			0.09			1.060
RESULTS ARE AS FOLLOWS....												RESULTS ARE AS FOLLOWS....											

DISTANCE	CBOD5	ULT BOD	NH3-N	ULT NOD	D.O.	FLOW
(MILES)	(MG/L)	(MG/L)	(MG/L)	(MG/L)	(MG/L)	(MGD)
0.00	4.95	11.38	2.11	9.05	7.67	0.74
0.17	4.90	11.28	2.09	8.99	7.87	0.74
0.34	4.86	11.18	2.08	8.92	8.00	0.74
0.51	4.82	11.08	2.06	8.86	8.09	0.74
0.68	4.78	10.98	2.05	8.79	8.16	0.74
0.85	4.73	10.89	2.03	8.73	8.20	0.74
1.02	4.69	10.79	2.02	8.67	8.23	0.74
1.19	4.65	10.70	2.00	8.61	8.25	0.74
1.36	4.61	10.60	1.99	8.55	8.26	0.74
1.53	4.57	10.51	1.97	8.48	8.28	0.74
1.70	4.53	10.41	1.96	8.42	8.28	0.74
1.87	4.49	10.32	1.94	8.36	8.29	0.74
2.04	4.45	10.23	1.93	8.30	8.30	0.74
2.21	4.41	10.14	1.92	8.24	8.30	0.74
2.38	4.37	10.05	1.90	8.18	8.30	0.74
2.55	4.33	9.96	1.89	8.12	8.31	0.74
2.72	4.29	9.87	1.88	8.07	8.31	0.74
2.89	4.25	9.79	1.86	8.01	8.31	0.74
3.06	4.22	9.70	1.85	7.95	8.32	0.74
3.23	4.18	9.61	1.84	7.89	8.32	0.74
3.40	4.14	9.53	1.82	7.84	8.32	0.74
3.57	4.11	9.44	1.81	7.78	8.33	0.74
3.74	4.07	9.36	1.80	7.73	8.33	0.74
3.91	4.03	9.28	1.78	7.67	8.33	0.74
4.08	4.00	9.20	1.77	7.61	8.33	0.74
4.25	3.96	9.11	1.76	7.56	8.34	0.74
4.42	3.93	9.03	1.75	7.51	8.34	0.74
4.59	3.89	8.95	1.73	7.45	8.34	0.74
4.76	3.86	8.88	1.72	7.40	8.34	0.74
4.93	3.82	8.80	1.71	7.35	8.35	0.74
5.10	3.79	8.72	1.70	7.29	8.35	0.74
5.27	3.76	8.64	1.68	7.24	8.35	0.74
5.44	3.72	8.57	1.67	7.19	8.35	0.74
5.61	3.69	8.49	1.66	7.14	8.36	0.74
5.78	3.66	8.41	1.65	7.09	8.36	0.74
5.95	3.63	8.34	1.64	7.03	8.36	0.74
6.12	3.59	8.27	1.62	6.98	8.36	0.74
6.29	3.56	8.19	1.61	6.93	8.37	0.74
6.46	3.53	8.12	1.60	6.88	8.37	0.74
6.63	3.50	8.05	1.59	6.83	8.37	0.74
6.80	3.47	7.98	1.58	6.79	8.37	0.74

DISTANCE	CBOD5	ULT BOD	NH3-N	ULT NOD	D.O.	FLOW
(MILES)	(MG/L)	(MG/L)	(MG/L)	(MG/L)	(MG/L)	(MGD)
0.00	4.95	11.38	2.11	9.05	7.67	0.74
0.17	4.90	11.28	2.09	8.99	7.87	0.74
0.34	4.86	11.18	2.08	8.92	8.00	0.74
0.51	4.82	11.08	2.06	8.86	8.09	0.74
0.68	4.78	10.98	2.05	8.79	8.16	0.74
0.85	4.73	10.89	2.03	8.73	8.20	0.74
1.02	4.69	10.79	2.02	8.67	8.23	0.74
1.19	4.65	10.70	2.00	8.61	8.25	0.74
1.36	4.61	10.60	1.99	8.55	8.26	0.74
1.53	4.57	10.51	1.97	8.48	8.28	0.74
1.70	4.53	10.41	1.96	8.42	8.28	0.74
1.87	4.49	10.32	1.94	8.36	8.29	0.74
2.04	4.45	10.23	1.93	8.30	8.30	0.74
2.21	4.41	10.14	1.92	8.24	8.30	0.74
2.38	4.37	10.05	1.90	8.18	8.30	0.74
2.55	4.33	9.96	1.89	8.12	8.31	0.74
2.72	4.29	9.87	1.88	8.07	8.31	0.74
2.89	4.25	9.79	1.86	8.01	8.31	0.74
3.06	4.22	9.70	1.85	7.95	8.32	0.74
3.23	4.18	9.61	1.84	7.89	8.32	0.74
3.40	4.14	9.53	1.82	7.84	8.32	0.74
3.57	4.11	9.44	1.81	7.78	8.33	0.74
3.74	4.07	9.36	1.80	7.73	8.33	0.74
3.91	4.03	9.28	1.78	7.67	8.33	0.74
4.08	4.00	9.20	1.77	7.61	8.33	0.74
4.25	3.96	9.11	1.76	7.56	8.34	0.74
4.42	3.93	9.03	1.75	7.51	8.34	0.74
4.59	3.89	8.95	1.73	7.45	8.34	0.74
4.76	3.86	8.88	1.72	7.40	8.34	0.74
4.93	3.82	8.80	1.71	7.35	8.35	0.74
5.10	3.79	8.72	1.70	7.29	8.35	0.74
5.27	3.76	8.64	1.68	7.24	8.35	0.74
5.44	3.72	8.57	1.67	7.19	8.35	0.74
5.61	3.69	8.49	1.66	7.14	8.36	0.74
5.78	3.66	8.41	1.65	7.09	8.36	0.74
5.95	3.63	8.34	1.64	7.03	8.36	0.74
6.12	3.59	8.27	1.62	6.98	8.36	0.74
6.29	3.56	8.19	1.61	6.93	8.37	0.74
6.46	3.53	8.12	1.60	6.88	8.37	0.74
6.63	3.50	8.05	1.59	6.83	8.37	0.74
6.80	3.47	7.98	1.58	6.79	8.37	0.74

Appendix 3 – EJScreen Study Results

EJScreen Report (Version 2.0)

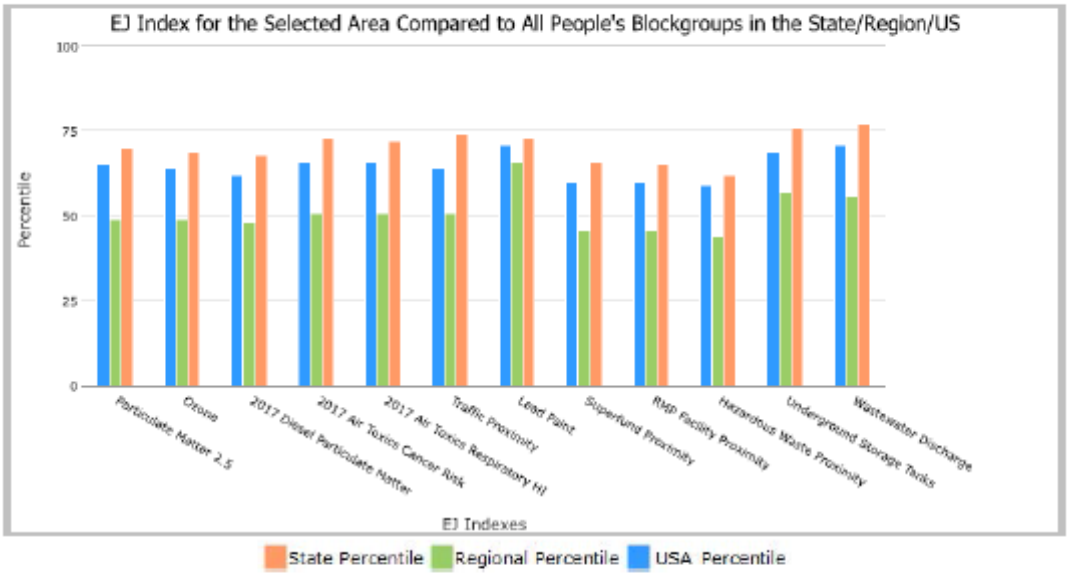
10 miles Ring around the Corridor, OKLAHOMA, EPA Region 6

Approximate Population: 14,117

Input Area (sq. miles): 489.63

Choctaw Nation POTW

Selected Variables	State Percentile	EPA Region Percentile	USA Percentile
Environmental Justice Indexes			
EJ Index for Particulate Matter 2.5	70	49	65
EJ Index for Ozone	69	49	64
EJ Index for 2017 Diesel Particulate Matter*	68	48	62
EJ Index for 2017 Air Toxics Cancer Risk*	73	51	66
EJ Index for 2017 Air Toxics Respiratory HI*	72	51	66
EJ Index for Traffic Proximity	74	51	64
EJ Index for Lead Paint	73	66	71
EJ Index for Superfund Proximity	66	46	60
EJ Index for RMP Facility Proximity	65	46	60
EJ Index for Hazardous Waste Proximity	62	44	59
EJ Index for Underground Storage Tanks	76	57	69
EJ Index for Wastewater Discharge	77	56	71



This report shows the values for environmental and demographic indicators and EJSCREEN indexes. It shows environmental and demographic raw data (e.g., the estimated concentration of ozone in the air), and also shows what percentile each raw data value represents. These percentiles provide perspective on how the selected block group or buffer area compares to the entire state, EPA region, or nation. For example, if a given location is at the 95th percentile nationwide, this means that only 5 percent of the US population has a higher block group value than the average person in the location being analyzed. The years for which the data are available, and the methods used, vary across these indicators. Important caveats and uncertainties apply to this screening-level information, so it is essential to understand the limitations on appropriate interpretations and applications of these indicators. Please see EJSCREEN documentation for discussion of these issues before using reports.

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Appendix 3 – EJScreen Study Results (Cont'd)

EPA United States Environmental Protection Agency

EJScreen Report (Version 2.0)

10 miles Ring around the Corridor, OKLAHOMA, EPA Region 6

Approximate Population: 14,117

Input Area (sq. miles): 489.63

Choctaw Nation POTW

Selected Variables	Value	State Avg.	%ile in State	EPA Region Avg.	%ile in EPA Region	USA Avg.	%ile in USA
Pollution and Sources							
Particulate Matter 2.5 (µg/m³)	9.34	9.66	28	9.32	34	8.74	70
Ozone (ppb)	40.3	45.9	1	41.1	48	42.6	33
2017 Diesel Particulate Matter* (µg/m³)	0.102	0.195	21	0.219	<50th	0.295	<50th
2017 Air Toxics Cancer Risk* (lifetime risk per million)	34	29	92	32	80-90th	29	80-90th
2017 Air Toxics Respiratory HI*	0.44	0.39	87	0.37	80-90th	0.36	80-90th
Traffic Proximity (daily traffic count/distance to road)	74	220	46	470	29	710	28
Lead Paint (% Pre-1960 Housing)	0.12	0.23	50	0.16	63	0.28	43
Superfund Proximity (site count/km distance)	0.013	0.05	20	0.08	12	0.13	9
RMP Facility Proximity (facility count/km distance)	0.14	0.57	23	0.83	21	0.75	24
Hazardous Waste Proximity (facility count/km distance)	0.028	0.84	6	0.8	5	2.2	2
Underground Storage Tanks (count/km²)	0.7	1.5	50	2	41	3.9	40
Wastewater Discharge (toxicity-weighted concentration/m distance)	0.0023	0.09	67	0.5	57	12	57
Socioeconomic Indicators							
Demographic Index	43%	36%	72	44%	53	36%	67
People of Color	38%	34%	67	52%	38	40%	56
Low Income	49%	37%	74	36%	72	31%	79
Unemployment Rate	4%	5%	50	5%	51	5%	51
Linguistically Isolated	1%	2%	63	6%	42	5%	50
Less Than High School Education	18%	12%	79	15%	65	12%	76
Under Age 5	8%	7%	67	7%	61	6%	70
Over Age 64	17%	15%	66	13%	74	16%	65

*Diesel particular matter, air toxics cancer risk, and air toxics respiratory hazard index are from the EPA's 2017 Air Toxics Data Update, which is the Agency's ongoing, comprehensive evaluation of air toxics in the United States. This effort aims to prioritize air toxics, emission sources, and locations of interest for further study. It is important to remember that the air toxics data presented here provide broad estimates of health risks over geographic areas of the country, not definitive risks to specific individuals or locations. Cancer risks and hazard indices from the Air Toxics Data Update are reported to one significant figure and any additional significant figures here are due to rounding. More information on the Air Toxics Data Update can be found at: https://www.epa.gov/haps/air-toxics-data-update.

For additional information, see: www.epa.gov/environmentaljustice

EJScreen is a screening tool for pre-decisional use only. It can help identify areas that may warrant additional consideration, analysis, or outreach. It does not provide a basis for decision-making, but it may help identify potential areas of EJ concern. Users should keep in mind that screening tools are subject to substantial uncertainty in their demographic and environmental data, particularly when looking at small geographic areas. Important caveats and uncertainties apply to this screening-level information, so it is essential to understand the limitations on appropriate interpretations and applications of these indicators. Please see EJScreen documentation for discussion of these issues before using reports. This screening tool does not provide data on every environmental impact and demographic factor that may be relevant to a particular location. EJScreen outputs should be supplemented with additional information and local knowledge before taking any action to address potential EJ concerns.

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Appendix 3 – EJScreen Study Results (Cont'd)

EJSCREEN ACS Summary Report

Location: User-specified linear location
Ring (buffer): 10-miles radius
Description: Choctaw Nation POTW

Summary of ACS Estimates	2015 - 2019
Population	12,649
Population Density (per sq. mile)	16
People of Color Population	4,609
% People of Color Population	36%
Households	4,830
Housing Units	6,132
Housing Units Built Before 1950	403
Per Capita Income	20,742
Land Area (sq. miles) (Source: SF1)	781.89
% Land Area	97%
Water Area (sq. miles) (Source: SF1)	20.09
% Water Area	3%

	2015 - 2019 ACS Estimates	Percent	MOE (±)
Population by Race			
Total	12,649	100%	335
Population Reporting One Race	11,277	89%	1,043
White	8,265	65%	324
Black	468	4%	120
American Indian	1,796	14%	287
Asian	65	1%	47
Pacific Islander	224	2%	91
Some Other Race	458	4%	174
Population Reporting Two or More Races	1,372	11%	212
Total Hispanic Population	968	8%	185
Total Non-Hispanic Population	11,681		
White Alone	8,040	64%	321
Black Alone	468	4%	120
American Indian Alone	1,717	14%	284
Non-Hispanic Asian Alone	65	1%	47
Pacific Islander Alone	224	2%	91
Other Race Alone	0	0%	14
Two or More Races Alone	1,166	9%	186
Population by Sex			
Male	6,219	49%	210
Female	6,430	51%	229
Population by Age			
Age 0-4	937	7%	111
Age 0-17	3,228	26%	209
Age 18+	9,421	74%	338
Age 65+	2,246	18%	159

Data Note: Detail may not sum to totals due to rounding. Hispanic population can be of any race.
N/A means not available. **Source:** U.S. Census Bureau, American Community Survey (ACS) 2015 - 2019 .

Appendix 3 – EJScreen Study Results (Cont'd)

EJSCREEN ACS Summary Report

Location: User-specified linear location
Ring (buffer): 10-miles radius
Description: Choctaw Nation POTW

	2015 - 2019 ACS Estimates	Percent	MOE (±)
Population 25+ by Educational Attainment			
Total	8,291	100%	232
Less than 9th Grade	611	7%	119
9th - 12th Grade, No Diploma	905	11%	114
High School Graduate	3,606	43%	181
Some College, No Degree	1,549	19%	150
Associate Degree	517	6%	71
Bachelor's Degree or more	1,103	13%	120
Population Age 5+ Years by Ability to Speak English			
Total	11,712	100%	326
Speak only English	10,916	93%	349
Non-English at Home[1+2+3+4]	796	7%	177
[1]Speak English "very well"	518	4%	131
[2]Speak English "well"	91	1%	52
[3]Speak English "not well"	167	1%	90
[4]Speak English "not at all"	21	0%	24
[3+4]Speak English "less than well"	188	2%	92
[2+3+4]Speak English "less than very well"	278	2%	104
Linguistically Isolated Households*			
Total	37	100%	36
Speak Spanish	5	13%	19
Speak Other Indo-European Languages	0	0%	14
Speak Asian-Pacific Island Languages	32	85%	33
Speak Other Languages	1	1%	14
Households by Household Income			
Household Income Base	4,830	100%	141
< $15,000	767	16%	101
$15,000 - $25,000	776	16%	114
$25,000 - $50,000	1,349	28%	145
$50,000 - $75,000	813	17%	102
$75,000 +	1,125	23%	113
Occupied Housing Units by Tenure			
Total	4,830	100%	141
Owner Occupied	3,312	69%	131
Renter Occupied	1,518	31%	138
Employed Population Age 16+ Years			
Total	9,756	100%	250
In Labor Force	5,095	52%	222
Civilian Unemployed in Labor Force	232	2%	55
Not In Labor Force	4,661	48%	203

Data Note: Detail may not sum to totals due to rounding. Hispanic population can be of anyrace.
N/A means not available. **Source:** U.S. Census Bureau, American Community Survey (ACS)
*Households in which no one 14 and over speaks English "very well" or speaks English only.

Appendix 3 – EJScreen Study Results (Cont'd)

EPA United States Environmental Protection Agency

EJSCREEN ACS Summary Report

Location: User-specified linear location
Ring (buffer): 10-miles radius
Description: Choctaw Nation POTW

	2015 - 2019 ACS Estimates	Percent	MOE (±)
Population by Language Spoken at Home*			
Total (persons age 5 and above)	11,712	100%	326
English	10,916	93%	311
Spanish	463	4%	178
French	1	0%	14
French Creole	N/A	N/A	N/A
Italian	N/A	N/A	N/A
Portuguese	N/A	N/A	N/A
German	12	0%	14
Yiddish	N/A	N/A	N/A
Other West Germanic	N/A	N/A	N/A
Scandinavian	N/A	N/A	N/A
Greek	N/A	N/A	N/A
Russian	N/A	N/A	N/A
Polish	N/A	N/A	N/A
Serbo-Croatian	N/A	N/A	N/A
Other Slavic	N/A	N/A	N/A
Armenian	N/A	N/A	N/A
Persian	N/A	N/A	N/A
Gujarathi	N/A	N/A	N/A
Hindi	N/A	N/A	N/A
Urdu	N/A	N/A	N/A
Other Indic	N/A	N/A	N/A
Other Indo-European	5	0%	14
Chinese	1	0%	14
Japanese	N/A	N/A	N/A
Korean	0	0%	14
Mon-Khmer, Cambodian	N/A	N/A	N/A
Hmong	N/A	N/A	N/A
Thai	N/A	N/A	N/A
Laotian	N/A	N/A	N/A
Vietnamese	29	0%	31
Other Asian	144	1%	94
Tagalog	5	0%	14
Other Pacific Island	N/A	N/A	N/A
Navajo	N/A	N/A	N/A
Other Native American	N/A	N/A	N/A
Hungarian	N/A	N/A	N/A
Arabic	0	0%	14
Hebrew	N/A	N/A	N/A
African	N/A	N/A	N/A
Other and non-specified	127	1%	49
Total Non-English	796	7%	451

Data Note: Detail may not sum to totals due to rounding. Hispanic population can be of any race.
N/A meansnot available. **Source:** U.S. Census Bureau, American Community Survey (ACS) 2015 - 2019.
*Population by Language Spoken at Home is available at the census tract summary level and up.

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