MUNICIPAL FACILITY FACT SHEET

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

Permit No.: NC0089907 Last Updated: August 14, 2025

1. Summary of Changes from Previously Applicable Permit

- Updated limits tables with ICIS parameter codes
- Updated NHPA language in the fact sheet
- Clarified the reasoning for grab sampling instead of 24-hour composite in the fact sheet

2. Facility Information

A. Name and Address of Permittee: Eastern Band of Cherokee Indians
P.O. Box 455
Cherokee, North Carolina 28719

B. Facility Address: Jacob Cornsilk Complex
314 Cornsilk Branch Road
Robbinsville, North Carolina 28771

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	35°18'13.0" N	83°52'24.1" W	Snowbird Creek	Lower Little Tennessee HUC 06010204

E. Permitted Capacity: 0.03 MGD

F. Description of Wastewater Treatment Facility:

Outfall	Operation Description	Treatment Description
1	Sanitary Wastewater	Treatment consists of influent equalization, followed by attached-growth aerobic biological treatment, ultraviolet (UV) disinfection, and effluent flow monitoring. Estimated population served is 140.

G. Type of Wastewater Discharge:

☐ Process Wastewater ☐ Stormwater
☒ Domestic Wastewater ☐ Combined (describe)

☐ Other (describe)

H. Characterization of Effluent

Outfall No. 001 (As reported on application)

Effluent Characteristic	**Average Daily Value**	**Maximum Daily Value**
Flow, MGD	0.000244949	-
Carbonaceous Biochemical Oxygen Demand, 5-day ($CBOD_5$), mg/L	0.074194	4.6
Total Suspended Solids, mg/L	<2.6	7.6
E. Coli, #/100mL	1.11	17
pH, S.U.	6.1 (minimum)	7.3 (maximum)
Water Temperature (Winter), degrees Fahrenheit	57.2	47.45 (minimum)
Water Temperature (Summer), degrees Fahrenheit	77.75	84.2

Outfall No. 001 (As reported on DMRs April 2022 - February 2025).

Parameter Code	**Parameter Name**	**Units**	**No. Obs.**	**Mean**	**Min**	**Max**
80082	BOD, carbonaceous [5 day, 20 C], Weekly Avg	mg/L	35	2.07	2	4.6
80082	BOD, carbonaceous [5 day, 20 C], Monthly Avg	mg/L	35	2.008	2	2.3
80091	BOD, Percent removal, monthly average	%	35	99.95	98.15	100
300	Oxygen, dissolved [DO]	mg/L	35	6.59	3.2	10
51040	E. Coli, Monthly Avg	#/100mL	35	1.785714	1.0	9.5
51040	E. Coli, Daily Max	#/100mL	35	2.49	1.0	17
400	pH	SU	70	6.827	6.1	7.3
50050	Flow, in conduit or thru treatment plant, Monthly Avg	MGD	35	0.00024327	0.0000667	0.00088456
50050	Flow, in conduit or thru treatment plant, Weekly Avg	MGD	35	0.00030415	0.0000667	0.002359
610	Nitrogen, ammonia total [as N], Monthly Avg	mg/L	35	0.199	0.05	0.8
610	Nitrogen, ammonia total [as N], Weekly Avg	mg/L	35	0.299	0.01	1.1
600	Nitrogen, total [as N], Monthly Avg	mg/L	35	5.78	0.7	12.3
665	Phosphorus, total [as P], Monthly Avg	mg/L	35	9.75	0.07	20.5
81011	Solids, suspended percent	%	35	99.42	92.6	100

	removal, Monthly Avg					
530	Solids, total suspended, Monthly Avg	mg/L	35	2.71	2.5	5.1
530	Solids, total suspended, Weekly Avg	mg/L	35	2.846	2.5	7.6

3. Water Quality Standards & Receiving Waterbody Information

A. Receiving Waterbody Classification and Information – The discharge goes into Snowbird Creek, which is within the Cheoah River subwatershed. Based on the Eastern Band of Cherokee Indians' (EBCI) Water Quality Standards (WQS), Cherokee waters within the Cheoah River subwatershed are designated for Ceremonial, Recreation, and Cold-Water Aquatic Habitat uses (3.2). Downstream, the state of North Carolina WQS are applicable as well. The section of Snowbird Creek within the state of North Carolina downstream of the discharge has designated uses of Class C (Secondary Recreation, Fishing, Aquatic Life, and Wildlife) and Tr (Trout Waters). By developing this permit to comply with the Tribe's promulgated criteria, this permit is protective of downstream State-designated uses.

B. Specific Water Quality Criteria for Classified Water Usage

The following are the most protective of criteria within the following applicable use classifications:

a. Nutrients: Except as due to natural conditions, nutrients shall not be allowed in concentrations that render the waters unsuitable for the existing or designated uses due to objectionable algal densities, nuisance aquatic vegetation, diurnal fluctuations in dissolved oxygen, or pH indicative of excessive photosynthetic activity, detrimental changes to the composition of aquatic ecosystems or other indicators of use impairment caused by nutrients.

b. Flow: Natural daily, seasonal, annual, and inter-annual fluctuations of flow shall be maintained to support the naturally balanced indigenous biological community including those species most sensitive to alterations in flow, including trout and all life stages of trout.

c. pH: The normal pH of the water shall be 6.0 to 9.0 and shall not vary more than 1.0 unit.

d. Bacteria: Escherichia coli shall not exceed a geometric mean of 126 per 100 mL nor shall more than ten percent of the samples examined during any month exceed 410 per 100 mL.

e. Dissolved Oxygen: A minimum concentration of 6.5 mg/L as a daily average and 5 mg/L as an instantaneous minimum shall be maintained at all times.

f. Temperature: Water temperature shall not be increased by more than 0.5 °C as a result of discharge and in no case be increased to exceed 20 °C (68 °F), the required temperature necessary to support trout habitat.

g. Solids: Neither total dissolved solids nor total suspended solids shall be changed to the

extent that the indigenous aquatic community is adversely affected. No settleable solids shall be added that may adversely alter the stream bottom.

h. Ammonia: Ammonia criteria shall be in accordance with the EPA recommendations as expressed on pages 40, 41, 42, 44, 45, 46, and 49 of Aquatic Life Ambient Water Quality for Ammonia – Freshwater 2013 (April 2013, EPA-822-R-13-001). Such information is hereby incorporated by reference. Where mussels in the order Unionoida are absent at a site, ammonia criteria may be calculated on a site-specific basis. Any such site-specific criteria shall be in accordance with the equations and tables expressed on pages 228, 229, 231, 235, 236, 239, and 240 in Appendix N of the document referenced above.

i. Toxicants

a. Narrative:
1. Aquatic Life Criteria: The concentration of toxic substances shall not result in chronic or acute toxicity or impairment of the uses of aquatic life and shall not exceed the chronic or acute criteria in Table 1, unless within a mixing zone or a site-specific criterion is developed consistent with the documented procedures.

2. Human Health Criteria: The concentration of toxic substances shall not exceed the level necessary to protect human health through exposure routes of fish tissue consumption, water consumption, or other routes identified as appropriate for the particular body of water, as presented in Table 2. "Water and Organisms" criteria assume the consumption of 2.4 liters of water and 22.0 grams of fish per day, while the "Organisms Only" criteria are based on the consumption of 22.0 grams of fish per day.

b. Numerics: *Eastern Band of Cherokee Indians Water Quality Standards: Administrative Rules Appendix A: Table 1 and Table 2*

j. "Free-Froms": All surface waters, including those within the mixing zone, must be capable of supporting aquatic life and shall be free from: a. Substances that settle to form objectionable deposits or sediments, b. Floating debris, scum, oil, and other floating materials that form a nuisance or interfere with designated water uses, c. Material or practices that produce objectionable color, odor, taste, or turbidity, d. Substances which are acutely toxic or produce adverse physiological or behavioral responses in humans, animals, plants, fish and other aquatic life, e. Substances which produce undesirable aquatic life or result in the dominance of nuisance species, and f. Substances which cause fish flesh tainting.

C. Critical Flows – Implementing EBCI water quality standards require consideration of flow design criteria for effluent limitations. Due to minimal flow data in the receiving waterbody, conservative assumptions were made regarding critical flows, resulting in a 7Q10 flow consistent with the 7Q10 cited in the *EBCI Environmental Information Document, August 2019*[1].

Snowbird Creek: 7Q10 = 31 cubic feet per second (cfs)

[1] Environmental Information Document for a New Wastewater Treatment Plant, Jacob Cornsilk Complex, Robbinsonville, North Carolina, Prepared for Eastern Band of Cherokee Indians by Civil & Environmental Consultants, Inc., CEC Project 191-994, August 2019.

D. 303(d) Status – Snowbird Creek has not been assessed for water quality by the EBCI. Based on the state of North Carolina's 2018 Integrated Report, Snowbird Creek was assessed in 2014 and is meeting its designated aquatic life use.

E. Total Maximum Daily Loads – A statewide mercury TMDL for North Carolina was finalized in 2012.

4. Effluent Limits and Permit Conditions

A. Proposed Effluent Limitations for Outfall 001

Parameter and ICIS Parameter Code	Quantity or Loading			Quality or Concentration				Frequency of Analysis	Sample Type
	Value	Value	Units	Value	Value	Value	Units		
Temperature, water deg. Centigrade 00011 1 0 Effluent Gross	Req. Mon. MONTHLY AVERAGE		Deg C	****	****	****	****	2/month	grab
Oxygen, dissolved [DO] 00300 1 0 Effluent Gross	****	****	****	3 DAILY MINIMU M	****	****	Mg/l	2/month	grab
pH 00400 1 0 Effluent Gross	****	****	****	6 DAILY MINIMU M	****	9 DAILY MAXIMU M	SU	2/month	instanta neous
Solids, total suspended 00530 1 0 Effluent Gross	****	****	****	****	30 MONTHL Y AVERAG E	45 WEEKLY AVERAG E	Mg/L	2/month	Grab[c]
Solids, total suspended 00530 G 0 Raw Sewage Influent	****	****	****	****	Req Mon. MONTHL Y AVERAG E	****	Mg/L	2/month	Grab[c]
Nitrogen, total [as N] 00600 1 0 Effluent Gross	****	****	****	****	Req. Mon. MONTHL Y AVERAG E	Req. Mon. DAILY MAXIMU M	mg/L	Monthly	Grab[c]
Nitrogen, ammonia total [as N] 00610 1 0 Effluent Gross	****	****	****	****	10.0 MONTHL Y AVERAG E	15.0 DAILY MAXIMU M	Mg/L	2/month	Grab[c]
Phosphorus, total [as P]00665 1 0	****	****	****	****	Req. Mon. MONTHL	Req. Mon. DAILY	mg/L	Monthly	Grab[c]

					Y AVERAGE	MAXIMUM			
Flow, in conduit or thru treatment Plant 50050 1 0 Effluent Gross	Req Mo. MONTHLY AVERAGE	Req Mo. WEEKLY AVERAGE	MGD	****	****	****	****	2/month	Instantaneous
E. coli 51040 1 0 Effluent Gross	****	****	****	****	126[b] MONTHLY AVERAGE	410[b] DAILY MAXIMUM	#/100 mL	2/month	Grab
BOD, carbonaceous [5 day, 20 C] 80082 1 0 Effluent Gross	****	****	****	****	25 MONTHLY AVERAGE	40 WEEKLY AVERAGE	Mg/L	2/month	Grab[c]
BOD, carbonaceous [5 day, 20 C] 80082 G 0 Raw Sewage Influent	****	****	****	****	Req. Mon. MONTHLY AVERAGE		Mg/L	2/month	Grab[c]
BOD, carb-5 day, 20 deg C, percent Removal 80091 K 0	****	****	****	85 MONTHLY AVERAGE MINIMUM[a]	****	****	%	Monthly	Calculated
Solids, suspended percent removal 81011 K 0	****	****	****	85 MONTHLY AVERAGE MINIMUM[a]	****	****	%	Monthly	Calculated

[a] Each month, the average effluent $CBOD_5$ and TSS concentrations shall not exceed 15% of the average of their respective influent concentration values (85% removal).

[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. No more than 10 percent of the E. coli samples examined during any month shall exceed 410 colonies per 100 ml.

[c] While sampling procedure for these pollutants is usually 24-hour composite, due to the small size of this facility, grab sampling is allowed.

B. Reasonable Potential (RP)

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. The EPA's reasonable potential analysis is based on guidelines provided in the "U.S. EPA NPDES Permit Writer's Manual (2010)" and its references. A reasonable potential analysis was conducted, and there was no reasonable potential for any of the pollutants. See Appendix 3 for a copy of the reasonable potential analysis.

C. Basis for Conventional Pollutants Limits

Pollutant of Concern	**Basis**
pH, SU	The effluent limitation range for pH was based on minimum level of effluent quality requirements of 40 CFR § 133.102 for discharges of wastewater from POTWs.
5-Day Carbonaceous Biochemical Oxygen Demand ($CBOD_5$), mg/l	Effluent $CBOD_5$ limits in the permit include a monthly average concentration of 25.0 mg/l and a weekly average concentration of 40.0 mg/l, which are based on secondary treatment standards. Effluent $CBOD_5$ loading limits of 6.26 lbs/day monthly average and 10.01 lbs/day weekly average are also included in this permit; they are based on the design flow as reported on the application. The $CBOD_5$ limits are based on meeting the EBCI's DO standard of 6.5mg/L at the point of discharge and are protective of the state of North Carolina's downstream water quality standard of 6.0 mg/L in Snowbird Creek down to Lake Santeetlah, as modeled through QUAL2K. The percent removal limitation for $CBOD_5$ is based on the minimum level of effluent quality requirements of 40 CFR § 133.102 for discharge of waters from POTWs. For calculation of the percent removal, influent $CBOD_5$ monitoring has been added.
Total Suspended Solids (TSS), mg/l	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 7.51 lbs/day and weekly average limits of 45 mg/l and 11.26 lbs/day, as well as an 85% removal limitation and influent monitoring.
E. coli, #/100ml	The effluent limitations for Escherichia coli are based on meeting the EBCI's water quality standards for ceremonial and recreational uses. The permit includes a monthly limit expressed as a geometric mean of 126 #/100 mL and a daily maximum limit that no more than 10 percent of the samples examined during any month shall exceed of 410 #/100 ml.

D. Basis for Nonconventional Pollutants Limits

Pollutant of Concern	**Basis**
Ammonia, mg/l	The permit includes monthly average ammonia limits of 10.0 mg/l and 2.50 lbs/day and weekly average ammonia limits of 15.0 mg/l and 3.75 lbs/day. Assuming rapid and instantaneous mixing at the point of discharge, model runs using QUAL2K show that the limits are protective of the EBCI's dissolved oxygen criteria at critical conditions and is the same limit as included in the previous permit.
Dissolved Oxygen, DO, mg/l	The permit includes a daily minimum dissolved oxygen limit of 3.0 mg/l. Assuming rapid and instantaneous mixing at the point of discharge, model runs using QUAL2K show that the limits are protective of EBCI's dissolved oxygen criteria for its cold-water aquatic habitat use and is the same limit as included in the previous permit. This limit is also protective of North Carolina's water quality standard for dissolved oxygen based on model

	results of downstream waters.
Total Nitrogen, mg/l	Monitoring for Total Nitrogen is being required so that sufficient information will be available from this point source to inform future permit decisions, i.e., to determine whether it will be necessary at some later time to impose limits on this discharge.
Total Phosphorus, mg/l	Monitoring for Total Phosphorus is being required so that sufficient information will be available from this point source to inform future permit decisions, i.e., to determine whether it will be necessary at some later time to impose limits on this discharge.

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

a. Instream Waste Concentration (IWC)

$$IWC\ (\%) = \frac{\text{Design Flow (gpd)}}{\text{Design Flow (gpd)+7Q10(gpd)}} x\ 100\%$$

$$IWC\ (\%) = \frac{30{,}000\ \text{gpd}}{30{,}000\ \text{gpd} + 20{,}035{,}823.38\ \text{gpd}}\ x\ 100\%$$

$IWC\ (\%) = 0.15\%$ in the Unnamed Tributary to Snowbird Creek

b. Dissolved Oxygen (DO)

i. Minimum DO Analysis

The EBCI's DO criteria for its cold-water aquatic habitat use is a minimum concentration of 6.5 mg/L as a daily average and 5 mg/L as an instantaneous minimum. Given the small discharge flow relative to the receiving water, rapid and instantaneous mixing of the effluent is assumed at the point of discharge. Best professional judgement was used to select a daily minimum DO limit of 3.0 mg/L. The analysis below was done to show how a DO limit of 3.0 mg/L has negligible impacts to the receiving water.

Rearranging a mass balance equation, $C_sQ_s + C_dQ_d = C_rQ_r$ results in the equation:

$$C_r = \frac{[(C_s)(Q_s) + (C_d)(Q_d)]}{(Q_r)}$$

Where:

C_r = Receiving water concentration

C_s = Upstream receiving water concentration

Q_s = Upstream receiving water flow

C_d = Effluent concentration

Q_d = Effluent flow

Q_r = Downstream receiving water flow

Using the DO criteria for C_s and 7Q10 flow for Q_s results in the equation:

$$C_r = \frac{[(6.5\ mg/L)(20.04\ MGD) + (3\ mg/L)(0.03\ MGD)]}{(20.04 + 0.03\ MGD)}$$

C_r = 6.495 mg/L

Selection of a minimum DO limit of 3.0 mg/L for the discharge results in a DO concentration of 6.495 mg/L in the receiving water. The difference between the resulting receiving water concentration compared to EBCI's DO criteria of 6.5 mg/L is immeasurable. These calculations account for multiple conservative assumptions, including the use of a 7Q10 flow for the receiving water and the facility's design flow. Additionally, the facility is predicted to routinely achieve higher DO concentrations in the effluent.

Modeling using QUAL2K was run to meet a minimum target DO concentration of 6.5 mg/L in the receiving water. The model was used to analyze the effect of the facility's effluent on the receiving waterbody and determine $CBOD_5$, ammonia, and DO limits that are protective of these criteria. See Appendix 1 for a description of the model.

c. Ammonia

i. Ammonia Toxicity Analysis

The EBCI's WQS for ammonia references EPA's *Aquatic Life Ambient Water Quality Criteria for Ammonia – Freshwater 2013* (EPA-822-R-13-001). The below analyses were done to determine whether there is a reasonable potential for ammonia toxicity upon discharge.

<u>Criterion Maximum Concentration (CMC) - *Oncorhynchus spp*. Present</u>

$$CMC = MIN\left(24.10, \left(0.7249\ x\ 23.12\left(10^{0.036x(20-T)}\right)\right)\right)$$

Where:

T = Temperature

CMC = acute criterion magnitude for total ammonia

Using average measured instream pH and temperature values of 7.1 SU and 18 ºC correlates to an instream CMC of 18 mg/L, according to Table 5a of EPA's ammonia criteria document.

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

$$C_E = \frac{[18\ mg/L \times (0.03 + 20.04\ MGD)] - (20.04 \times 0)}{0.03}$$

Where:

C_B = Upstream ammonia concentration = 0 mg/L

C_E = Allowable ammonia effluent concentration, mg/L

C_E = 12,042 mg/L

Criterion Continuous Concentration (CCC)

$$CCC = 0.8876 \text{ x} \left(\frac{0.0278}{1+10^{(7.688 - \text{pH})}} + \frac{1.1994}{1+10^{(\text{pH} - 7.688)}}\right) \times (2.126 \times 10^{0.028 \times (20 - MAX(T,7))})$$

CCC = Instream criterion continuous concentration for total ammonia

Using average measured instream pH and temperature values of 7.1 SU and 18 ºC correlates to an instream CCC of 2.1 mg/L, according to Table 6 of EPA's ammonia criteria document.

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

$$C_E = \frac{[2.1 \times (0.03 + 20.04\ MGD)] \ - \ (20.04 \times 0)}{0.03}$$

Where:

C_B = Upstream ammonia concentration = 0 mg/L

C_E = 1405 mg/L

The allowable acute and chronic ammonia effluent concentrations are 12,042 mg/L and 1405 mg/L, given the small discharge flow relative to the receiving water. As such, the ammonia limits in the permit were not based on the allowable water-quality based ammonia effluent concentrations. Best professional judgement was used to select more reasonable ammonia limits of 10 mg/L (monthly average) and 15 mg/L (weekly average) that would result in compliance with a minimum, simulated instream DO concentration. The selected ammonia permit limits should not result in ammonia toxicity when compared to the allowable acute and chronic values calculated above.

F. 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**
$CBOD_5$	25 mg/L Monthly Average 40 mg/L Weekly Average

TSS	30 mg/L Monthly Average 45 mg/L Weekly Average
Removal	85% $CBOD_5$ and TSS
pH	Maintained within the limits of 6.0-9.0 standard units

G. 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, 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	Proposed Permit Limits							
	WQBELs				TBELs			
	Daily Min	Monthly Avg	Weekly Avg	Daily Max	Daily Min	Monthly Avg	Weekly Avg	Daily Max
Flow, MGD	---	**Report**	**Report**	---	---	---	---	---
Dissolved Oxygen, mg/l	**3.0**	---			---			
$CBOD_5$, mg/l (lb/d)	---	---	---	---	---	**25 (6.26)**	**40 (10.01)**	---
$CBOD_5$ % Removal	---				**85%**			
TSS, mg/l (lb/d)	---				**---**	**30.0 (7.51)**	**45.0 (11.26)**	**---**
TSS % Removal	---				**85%**			
pH, S.U.	**6.0**	---		**9.0**	6.0	---		9.0
E. coli, #/100 ml	**---**	**126**	**---**	**410**	---			
Temperature	---	**Report**	**Report**	---	---	---	---	---
TN, mg/l	---	**Report**	**Report**	---	---			
TP, mg/l	---	**Report**	**Report**	---	---			
Total Ammonia as Nitrogen, mg/l (lb/d)	---	**10.0 (2.50)**	**15.0 (3.75)**	---	---			

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.

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 Eastern Band of Cherokee Indians has promulgated water quality standards. The permit was developed to be consistent with the EBCI's Water Quality Standards. It is protective of designated uses of Tribal waters and with the other applicable provisions of the CWA (i.e., §§ 301, 302, 303, 306, and 307). The Tribe has been granted §401 certification authority, and this authority covers the issuance of this Permit. The EPA requested 401 certifications for this permit from the Cherokee on August 14, 2025, the Tribe certified it on X, and the EPA made a determination of "X" on X. Based on the determination of "X" the neighboring jurisdiction, North Carolina, was or was not alerted and gave the determination of "X" on X.

In addition, North Carolina has promulgated Water Quality Standards, and the permit is protective of the designated uses of North Carolina's waters. As a courtesy to the downstream state, the draft permit and fact sheet were sent to North Carolina, with an opportunity to comment.

6. U.S. Fish and Wildlife Service 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 the 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 July 9, 2025, the Service concurred with the EPA's determination that the project, as proposed, will not adversely affect federally listed species. According to a review of their records and of the information provided, no federally listed species or their habitat occur in Snowbird Creek.

7. National Environmental Policy Act (NEPA)

This facility is not considered a "new source" according to the definitions at 40 CFR §122.2 and therefore does not require an environmental assessment, environmental impact statement, or other information specified under 40 CFR §124.9(b)(6).

8. National Historic Preservation Act

Section 106 of the National Historic Preservation Act (NHPA), and implementing regulations 36 CFR Part 800 require the EPA, before issuing a license (permit), to identify the area of potential effect of a permitted discharge and, if historic or cultural resources within that area would be adversely affected by the discharge, to adopt measures when feasible to mitigate potential adverse effects of the licensed activity and properties listed or eligible for listing in the National Register of Historic Places. The MBCI is responsible for administering the NHPA within tribal boundaries. In a letter dated June 23, 2025, EPA sent out a determination letter to the tribe that the permit issuance will have no effect to historic or cultural properties. EPA received a concurrence letter from EBCI on July 22, 2025.

9. Public Participation

In accordance with 40 CFR § 124.10(d)(1), the Public Notice announcing the proposed issuance of the EPA Region 4's Individual NPDES Permit for Jacob Cornsilk Complex, No. NC0089907, will be published on the EPA Region 4's website. The comment period will be open for 30 days The public notice for this draft permit was also published in The Cherokee One Feather with the permit documents available on the EPA Region 4 website. The public comment period was open for 30 days after publication of the public notice. No comments were received during this time.

Appendix 1 – Description of QUAL2K[2] and Results

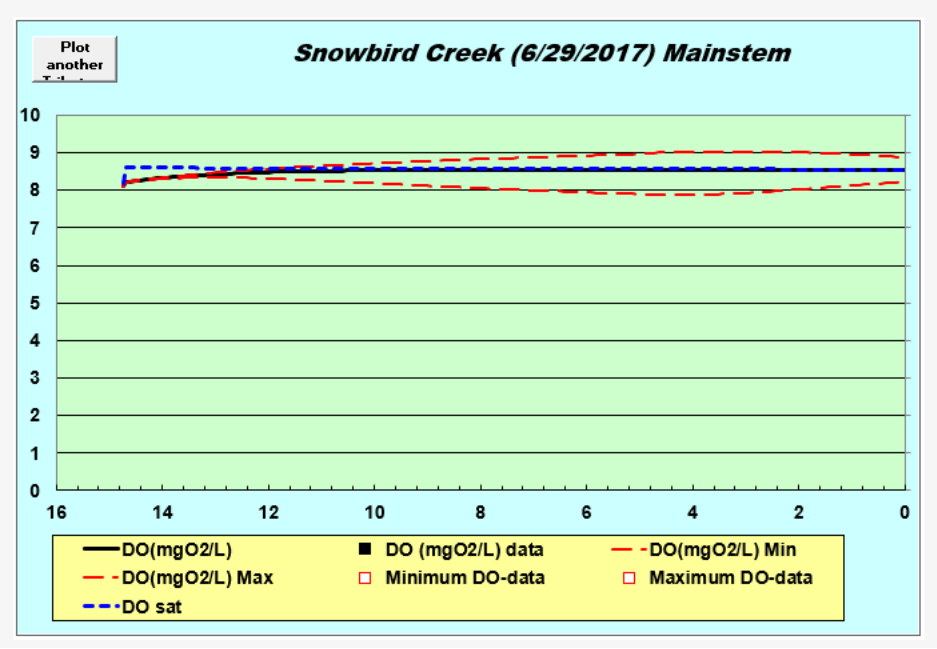
QUAL2K (or Q2K) is a river and stream water quality model that is intended to represent a modernized version of the QUAL2E (or Q2E) model (Brown and Barnwell 1987). Q2K is similar to Q2E in the following respects:

- One dimensional. The channel is well-mixed vertically and laterally.
- Branching. The system can consist of a mainstem river with branched tributaries.
- Steady state hydraulics. Non-uniform, steady flow is simulated.
- Diel heat budget. The heat budget and temperature are simulated as a function of meteorology on a diel time scale.
- Diel water-quality kinetics. All water quality variables are simulated on a diel time scale.
- Heat and mass inputs. Point and non-point loads and withdrawals are simulated.

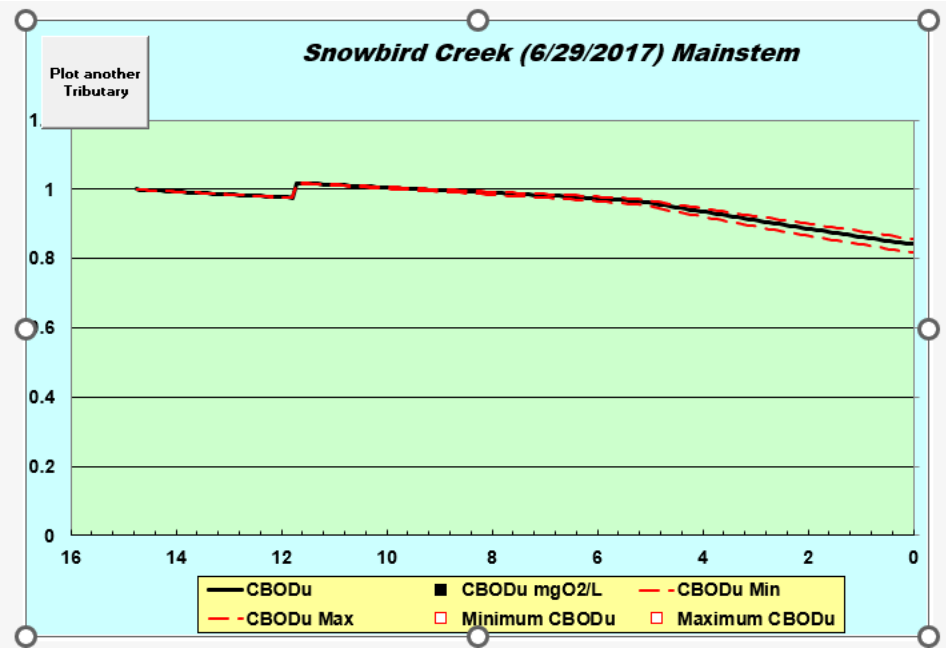
The QUAL2K framework includes the following new elements:

- Software Environment and Interface. Q2K is implemented within the Microsoft Windows environment. Numerical computations are programmed in Fortran 90. Excel is used as the graphical user interface. All interface operations are programmed in the Microsoft Office macro language: Visual Basic for Applications (VBA).
- Model segmentation. Q2E segments the system into river reaches comprised of equally spaced elements. Q2K also divides the system into reaches and elements. However, in contrast to Q2E, the element size for Q2K can vary from reach to reach. In addition, multiple loadings and withdrawals can be input to any element.
- Carbonaceous BOD speciation. Q2K uses two forms of carbonaceous BOD to represent organic carbon. These forms are a slowly oxidizing form (slow CBOD) and a rapidly oxidizing form (fast CBOD).
- Anoxia. Q2K accommodates anoxia by reducing oxidation reactions to zero at low oxygen levels. In addition, denitrification is modeled as a first-order reaction that becomes pronounced at low oxygen concentrations.
- Sediment-water interactions. Sediment-water fluxes of dissolved oxygen and nutrients can be simulated internally rather than being prescribed. That is, oxygen (SOD) and nutrient fluxes are simulated as a function of settling particulate organic matter, reactions within the sediments, and the concentrations of soluble forms in the overlying waters.
- Bottom algae. The model explicitly simulates attached bottom algae. These algae have variable stoichiometry.
- Light extinction. Light extinction is calculated as a function of algae, detritus and inorganic solids.
- pH. Both alkalinity and total inorganic carbon are simulated. The river's pH is then computed based on these two quantities.
- Pathogens. A generic pathogen is simulated. Pathogen removal is determined as a function of temperature, light, and settling.
- Reach specific kinetic parameters. Q2K allows you to specify many of the kinetic parameters on a reach-specific basis.
- Weirs and waterfalls. The hydraulics of weirs as well as the effect of weirs and waterfalls on gas transfer are explicitly included.

[2] Chapra, S.C., Pelletier, G.J. and Tao, H. 2008. QUAL2K: A Modeling Framework for Simulating River and Stream Water Quality, Version 2.11: Documentation and Users Manual. Civil and Environmental Engineering Dept., Tufts University, Medford, MA.



1. QUAL2K results graph for DO. Shows that addition of effluent to Snowbird Creek does not cause DO to vary from DO saturation in a significant way



2. QUAL2K results graph for CBOD. Shows that the addition of effluent to Snowbird Creek does not cause CBOD to vary from upstream CBOD in a significant way

Appendix 2 – Summary of Instream Monitoring

EBCI conducted a baseline sampling study in Snowbird Creek prior to submitting the initial NPDES permit application since there were no available water quality data. The sampling study consisted of samples collected from four locations in the creek - one site upstream and three downstream of the proposed facility. Sampling was conducted every other week from May 22, 2019 to August 14, 2019 for the following parameters:

- Dissolved Oxygen
- Temperature
- pH
- Conductivity
- Total Kjeldahl Nitrogen
- Total Nitrogen
- Nitrate
- Nitrite
- Ammonia-Nitrogen
- Total Phosphorus
- Phosphate
- Five-day Carbonaceous Biochemical Demand
- Total Suspended Solids
- Turbidity

Water quality samples were collected by personnel from EBCI Natural Resources and measured or analyzed using approved methods. The sampling results are presented in Tables 1-3 of the *EBCI Environmental Information Document, August 2019*.

Based on the monitoring results, paired with historical flow data, the ECBI document concludes that "the effluent from a well operated and properly designed WWTP should have virtually no measurable effect on the water quality in Snowbird Creek, even at low-flow conditions."

Appendix 3 – Reasonable Potential Analysis

Reasonable Potential Analysis (EPA method)		
NPDES #		
Applicant	Cherokee (EBCI)	
Project	Jacob Cornsilk	
RWB	Snowbird	
INPUT		
7Q10 (cfs)	36	
HMF (cfs)	36	
Effluent Flowrate (cfs)	0.00	
Hardness (effluent)	42.07	
DWS	no	

RWChmf=(((CV*Ceffavg)*Qeff)+(Cinstream*HFM))/(HFM+Qeff)
RWC7q10=(((CV*Ceffmax)*Qeff)+(Cinstream*Qin))/(Qin+Qeff)

	INPUT				VARIABLES					Avg conc. OUTPUT		Max conc. OUTPUT		
						Water Quality Criteria (mg/L)								
						Human Health		Warm Water Aquatic Habitat						
Pollutant	In-stream Concentration (mg/L)	MAXIMUM Effluent Concentration (mg/L)	AVERAGE Effluent Concentration (mg/L)	Sample Quantity	Multiplying Factor (CV = 0.6)	DWS	FC	Acute	Chronic	RWC_{HMF} (mg/L)	FC_{HMF} RP	RWC_{7Q10} (mg/L)	DWS_{7Q10} RP	$WWAH_{7Q10}$ RP
Flow, MGD	0.0000	0.002359	0.00030415	35	1.9		0.000	Report	Report	0.0000		0.0000		
Nitrogen (total) TN as N	0.0000	12.3	5.8	35	1.9		0.000	0.2800	0.2800	0.0002		0.0002		
Phosphorus (total) TP as P	0.0000	20.5	9.8	35	1.9		0.000	0.0071	0.0071	0.0004		0.0004		
CBOD5, mg/l	0	4.6	2.1	35	1.9	1.0000	1.000	11.00	3.39	0.0001		0.0000		
TSS, mg/l	0.0000	7.6	2.7	35	1.9	15.0000	15.000	45.00	30.00	0.0002		0.0001		
DO	0.0000	10.0	6.6	35	1.9	3.0000	3.000	5.00	4.00	0.0002		0.0001		
E. Coli	0.00000	17.0	1.8	35	1.9	50.0000	50.000000	410.00	126.00	0.0003		0.0000		