STATE OF TENNESSEE
DEPARTMENT OF ENVIRONMENT AND CONSERVATION
DIVISION OF WATER RESOURCES
William R. Snodgrass - Tennessee Tower
312 Rosa L. Parks Avenue, 11th Floor
Nashville, Tennessee 37243-1102

November 28, 2022

Mr. Gary Sharp
Waste Water Superintendent
e-copy: garyacwa@gmail.com
Anderson County Water Authority
650 Slatestone Rd.
Clinton, TN 37716

Subject: **NPDES Permit No. TN0074071**
Anderson County Water Authority
Briceville, Anderson County, Tennessee

Dear Mr. Sharp:

In accordance with the provisions of the Tennessee Water Quality Control Act, Tennessee Code Annotated (T.C.A.), Sections 69-3-101 through 69-3-120, the Division of Water Resources hereby issues the enclosed NPDES Permit. The continuance and/or reissuance of this NPDES Permit is contingent upon your meeting the conditions and requirements as stated therein.

Please be advised that a petition for permit appeal may be filed, pursuant to T.C.A. Section 69-3-105, subsection (i), by the permit applicant or by any aggrieved person who participated in the public comment period or gave testimony at a formal public hearing whose appeal is based upon any of the issues that were provided to the commissioner in writing during the public comment period or in testimony at a formal public hearing on the permit application.

Additionally, for those permits for which the department gives public notice of a draft permit, any permit applicant or aggrieved person may base a permit appeal on any material change to conditions in the final permit from those in the draft, unless the material change has been subject to additional opportunity for public comment.

Any petition for permit appeal under this subsection (i) shall be filed with the Technical Secretary of the Water Quality, Oil and Gas Board within thirty (30) days after public notice of the commissioner's decision to issue or deny the permit. A copy of the filing should also be sent to TDEC's Office of General Counsel.

TDEC has activated a new email address to accept appeals electronically. If you wish to file an appeal, you may do so by emailing the appeal and any attachments to TDEC.Appeals@tn.gov. If you file an appeal electronically, you do not have to send a paper copy. If you have questions about your electronic filing, you can call (615) 532-0131. Electronic filing is encouraged, but not required.

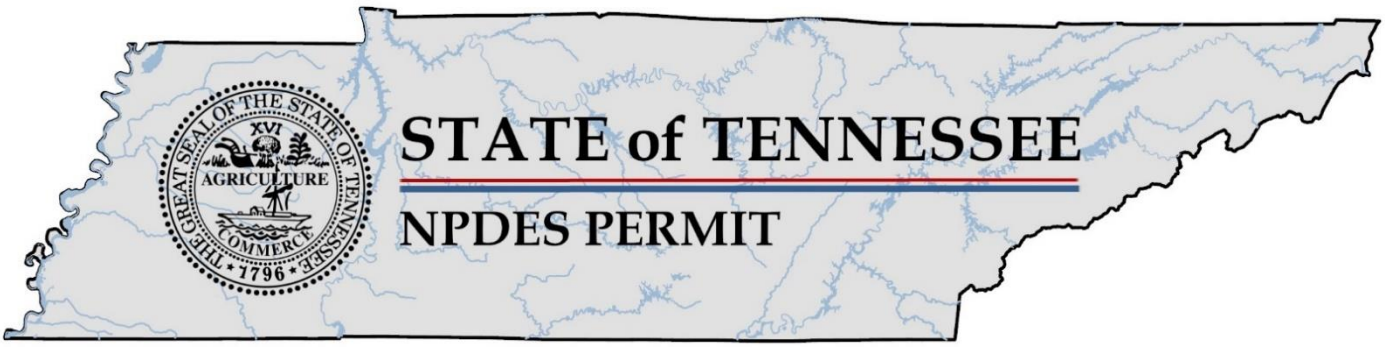
If you have questions, please contact the Knoxville Environmental Field Office at 1-888-891-TDEC; or, at this office, please contact Ms. Maybelle T. Sparks, P.E. at (615) 532-0651 or by E-mail at *Maybelle.Sparks@tn.gov*.

Sincerely,

Vojin Janjić
Manager, Water-Based Systems

Enclosure

cc: Permit Section File & Knoxville Environmental Field Office
Ms. Annelle Brown, Administrative Assistant, Anderson County Water Authority, abrown.acwa@comcast.net
Mr. Larry Clowers, General Manager, ACWA Airbase STP, larryclowers.acwa@gmail.com
Mr. John Mitchell, Assistant General Manager, Anderson County Water Authority, johnmitchell.acwa@gmail.com



Authorization to Discharge Under the National Pollutant Discharge Elimination System (NPDES) Permit Number TN0074071

Issued by

Department of Environment and Conservation
Division of Water Resources
William R. Snodgrass - Tennessee Tower
312 Rosa L. Parks Avenue, 11th Floor
Nashville, Tennessee 37243-1102

Under authority of the Tennessee Water Quality Control Act of 1977 (T.C.A. 69-3-101 et seq.) and the delegation of authority from the United States Environmental Protection Agency under the Federal Water Pollution Control Act, as amended by the Clean Water Act of 1977 (33 U.S.C. 1251, et seq.)

Discharger: **Anderson County Water Authority**
ACWA Airbase STP

is authorized to discharge: treated domestic wastewater from Outfall 001

from a facility located at: 650 Slatestone Rd., Briceville, Anderson County, Tennessee

to receiving waters named: Slatestone Creek at mile 1.5

in accordance with effluent limitations, monitoring requirements and other conditions set forth herein.

This permit shall become effective on: **March 1, 2023**

This permit shall expire on: **February 29, 2028**

Issuance date: **November 28, 2022**

for Jennifer Dodd
Director

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PART 1

1. EFFLUENT LIMITATIONS AND MONITORING REQUIREMENTS

1.1. NUMERIC AND NARRATIVE EFFLUENT LIMITATIONS

1.1.1. Numeric Limitations

Anderson County Water Authority is authorized to discharge treated domestic wastewater from Outfall 001 to Slatestone Creek at mile 1.5. Discharge from Outfall 001 shall be limited and monitored by the permittee as specified below:

Description: External Outfall, Number: 001, Monitoring: Effluent Gross, Season: All Year, Limit Set Status: Active							
Code	**Parameter**	**Qualifier**	**Value**	**Unit**	**Sample Type**	**Monitoring Frequency**	**Statistical Base**
00300	Oxygen, dissolved (DO)	>=	5.0	mg/L	Grab	Five Per Week	Minimum
00400	pH	>=	6.0	SU	Grab	Two Per Week	Minimum
00400	pH	<=	9.0	SU	Grab	Two Per Week	Maximum
00530	Total Suspended Solids (TSS)	<=	45	mg/L	Grab	Monthly	Daily Maximum
00530	Total Suspended Solids (TSS)	<=	30	mg/L	Grab	Monthly	Monthly Average
00545	Settleable Solids	<=	1.0	mL/L	Grab	Two Per Week	Daily Maximum
50050	Flow	Report	-	MGD	Instantaneous	Five Per Week	Monthly Average
50050	Flow	Report	-	MGD	Instantaneous	Five Per Week	Daily Maximum
50060	Chlorine, total residual (TRC)	<=	0.02	mg/L	Grab	Five Per Week	Daily Maximum
51040	E. coli	<=	126	#/100mL	Grab	Monthly	Monthly Geometric Mean
51040	E. coli	<=	941	#/100mL	Grab	Monthly	Daily Maximum
80082	CBOD, 5-day, 20 C	<=	25	mg/L	Grab	Monthly	Daily Maximum
80082	CBOD, 5-day, 20 C	<=	20	mg/L	Grab	Monthly	Monthly Average

Description: External Outfall, Number: 001, Monitoring: Effluent Gross, Season: Summer, Limit Set Status: Active							
Code	**Parameter**	**Qualifier**	**Value**	**Unit**	**Sample Type**	**Monitoring Frequency**	**Statistical Base**
00610	Nitrogen, Ammonia total (as N)	<=	1.5	mg/L	Grab	Monthly	Monthly Average
00610	Nitrogen, Ammonia total (as N)	<=	2	mg/L	Grab	Monthly	Daily Maximum
Description: External Outfall, Number: 001, Monitoring: Effluent Gross, Season: Summer, Limit Set Status: Compliance Schedule- Effective January 1, 2025							
Code	**Parameter**	**Qualifier**	**Value**	**Unit**	**Sample Type**	**Monitoring Frequency**	**Statistical Base**
00610	Nitrogen, Ammonia total (as N)	<=	1.0	mg/L	Grab	Monthly	Monthly Average
00610	Nitrogen, Ammonia total (as N)	<=	1.5	mg/L	Grab	Monthly	Daily Maximum
Description: External Outfall, Number: 001, Monitoring: Effluent Gross, Season: Winter, Limit Set Status: Active							
Code	**Parameter**	**Qualifier**	**Value**	**Unit**	**Sample Type**	**Monitoring Frequency**	**Statistical Base**
00610	Nitrogen, Ammonia total (as N)	<=	2.1	mg/L	Grab	Monthly	Monthly Average
00610	Nitrogen, Ammonia total (as N)	<=	3	mg/L	Grab	Monthly	Daily Maximum
Description: External Outfall, Number: 001, Monitoring: Effluent Gross, Season: Winter, Limit Set Status: Compliance Schedule- Effective January 1, 2025							
Code	**Parameter**	**Qualifier**	**Value**	**Unit**	**Sample Type**	**Monitoring Frequency**	**Statistical Base**
00610	Nitrogen, Ammonia total (as N)	<=	1.9	mg/L	Grab	Monthly	Monthly Average

Notes:

Unless elsewhere specified, summer months are May through October; winter months are November through April.

See **Part 1.2.3** for test procedures.

The permittee may collect more samples than specified as the monitoring frequency in the permit. Samples may not be collected at intervals of less than 12 hours. For the purpose of determining the geometric mean, individual samples having an *E. coli* group concentration of less than 1 per 100 mL shall be considered as having a concentration of 1 per 100 mL. In addition, the concentration of the *E. coli* group in any individual sample shall not exceed a specified maximum amount.

The permit limits of 1.0 mg/l (summer- monthly average), 1.5 mg/l (summer- daily maximum) and 1.9 mg/l (winter- monthly average) for Nitrogen, Ammonia total (as N) will become effective on January 1, 2025.

The effluent is disinfected via ultraviolet radiation. Total residual chlorine (TRC) monitoring shall be applicable when chlorine, bromine, or any other oxidants are added. The acceptable methods for analysis of TRC are any methods specified in Title 40 CFR § 136 as amended, so long as the requirements of Tennessee Rule 0400-40-03-.05(8) are met. The method detection limit (MDL) for TRC shall not exceed 0.05 mg/l unless the permittee demonstrates that its MDL is higher. The permittee shall retain the documentation that justifies the MDL and have it available for review upon request. In cases where the permit limit is less that the MDL, the reporting of TRC at less than the MDL shall be interpreted to constitute compliance with the permit.

1.1.2. Narrative Conditions

The permittee shall sign up for electronic reporting of Discharge Monitoring Reports using NetDMR within 90 days of the permit effective date. See Section 1.3.1. of the permit for more information.

The authorized discharge shall not:

- Result in distinctly visible solids, scum, foam, oily slick, or the formation of slimes, bottom deposits, or sludge banks of such size or character as may be detrimental to fish and aquatic life.
- Result in total suspended solids, turbidity, or color in such amounts or character that will result in any objectionable appearance to the receiving water, considering the nature and location of the water.
- Contain pollutants in quantities that will be hazardous or otherwise detrimental to humans, livestock, wildlife, plant life, or fish and aquatic life in the receiving stream.

Sludge or any other material removed by any treatment works must be disposed of in a manner that prevents its entrance into or pollution of any surface or subsurface waters.

1.2. MONITORING PROCEDURES

1.2.1. Representative Sampling

Samples and measurements taken in compliance with the monitoring requirements specified herein shall be representative of the volume and nature of the monitored discharge and shall be taken at the nearest accessible point after treatment and prior to mixing with uncontaminated stormwater runoff or the receiving stream. Appropriate flow measurement devices and methods consistent with accepted scientific practices shall be selected and used to ensure the accuracy and reliability of measurements of the volume of monitored discharges. The devices shall be installed and calibrated by a qualified source at least once

every 12 months[1], and maintained to ensure that the accuracy of the measurements is consistent with accepted capability of that type of device. Devices selected shall be capable of measuring flows with a maximum deviation of plus or minus 10% from the true discharge rates throughout the range of expected discharge volumes.

1.2.2. Sampling Frequency

The permittee should report "No Discharge" on Discharge Monitoring Reports (DMRs) only if a permitted outfall does not discharge at any time during the monitoring period. If the outfall discharges effluent at any time during the monitoring period, the permittee must provide at least one sampling result from the effluent of that outfall.

If the required monitoring frequency is once per month or 1/month, the monitoring period is one month. If the discharge occurs during only one day in that period, the permittee must sample on that day and report the results of analyses accordingly.

1.2.3. Test Procedures

a) Test procedures for the analysis of pollutants shall conform to regulations published pursuant to Section 304 (h) of the Clean Water Act (the "Act"), as amended, under which such procedures may be required.

b) Unless otherwise noted in the permit, all pollutant parameters shall be determined using sufficiently sensitive methods in Title 40 CFR § 136, as amended, and promulgated pursuant to Section 304 (h) of the Act. The chosen methods must be sufficiently sensitive as required in state rule 0400-40-03-.05(8).

c) If the ML for all methods available in accordance with 40 CFR § 136 are above the stated permit limit or applicable water quality criteria for that parameter, then the method with the lowest ML shall be used.

d) Where the analytical results are below the method detection limit (MDL), the permittee shall report the actual laboratory MDL and ML values. See **Section 1.3.5.** for instructions regarding reporting less than detection.

[1] The Division expects for permittees to meet EPA's guidance on proper operation and maintenance of flow measurement devices, as stated in the NPDES Compliance Inspection Manual.

e) When there is no analytical method that has been approved under 40 CFR §136 or required under 40 CFR chapter I, subchapter N or O, and a specific method is not otherwise required by the Director, the permittee may use any suitable method but shall provide a description of the method. When selecting a suitable method, factors such as a method's precision, accuracy, or resolution must be considered when assessing the performance of the method.

1.2.4. Recording of Results

For each measurement or sample taken pursuant to the requirements of this permit, the permittee shall record the following information:

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

b) The individual(s) who performed the sampling or measurements;

c) The date analyses were performed;

d) The individual(s) who performed the analyses;

e) The laboratory where the analyses were performed;

f) The analytical techniques or methods used; and

g) The results of such analyses.

1.2.5. Records Retention

The permittee shall retain records of all monitoring information, including all calibration and maintenance records and all original strip chart recordings for continuous monitoring instrumentation, copies of all reports required by this permit, and records of all data used to complete the application for this permit, for a period of at least 3 years from the date of the sample, measurement, report or application. This period may be extended by request of the Director at any time.

1.3. REPORTING

1.3.1. Monitoring Results

Monitoring results shall be recorded and submitted monthly using Monthly Operational Reports (MORs). The permittee shall continue using MORs and will also be required to submit Discharge Monitoring Reports (DMRs) using EPA's

NetDMR website for electronic reporting. The permittee must sign up for NetDMR within 90 days of the permit effective date. See Section 1.6 for more information.

See below for more specific information for MOR and NetDMR reporting requirements:

MOR Reporting:

Monitoring results shall be recorded monthly and submitted monthly using Monthly Operational Reports (MORs). MORs shall be submitted by the 15th day of the month following data collection and shall be submitted by one of the following methods, presented below in order of preference:

1) Using MyTDEC Forms, if available.

2) Submitting both a signed and certified copy in pdf format, uploaded as an attachment to NetDMR, *and* a copy of the native format spreadsheet file emailed to DWRWW.Report@tn.gov and TDEC.Knoxville.EFO@tn.gov.

3) Submitting signed and certified forms to the EFO at the following address:

STATE OF TENNESSEE
DEPARTMENT OF ENVIRONMENT AND CONSERVATION
DIVISION OF WATER RESOURCES
Knoxville Environmental Field Office
3711 Middlebrook Pike
Knoxville, Tennessee 37921

Monthly Operation Reports must be signed and certified by a responsible corporate officer, as defined at 40 CFR 122.22, or a general partner or proprietor, or a principal municipal executive officer or ranking elected officer, or a duly authorized representative. Such authorization must be submitted in writing and must explain the duties and responsibilities of the authorized representative.

In the event that electronic reporting is unavailable, the permittee shall comply with reporting conditions provided in **Section 1.6**.

DMR Reporting using NetDMR:

The first DMR is due on the 15th of the month following permit effectiveness using EPA's NetDMR website. Subsequent DMRs shall be submitted through

NetDMR no later than 15 days after the completion of the reporting period. In compliance with the Federal NPDES Electronic Reporting Rule, DMRs may not be submitted via email under any circumstances.

Discharge Monitoring Reports and any other information or report must be signed and certified by a responsible corporate officer as defined in Tennessee Rules, Chapter 0400-40-05-.07(2)(i), a general partner or proprietor, a principal municipal executive officer or ranking elected official, or his or her duly authorized representative. Such authorization must be submitted in writing and must explain the duties and responsibilities of the authorized representative.

In the event that electronic reporting is unavailable, the permittee shall comply with reporting conditions provided in **Section 1.6**.

For more information about NetDMR electronic reporting and how to sign up, visit the Division's website here.

1.3.2. Additional Monitoring by Permittee

If the permittee monitors any pollutant more frequently than required by the permit using test procedures approved under 40 CFR § 136, or as specified in the permit, the results of this monitoring shall be included in the calculation and reporting of the data submitted in the MOR or other reporting form specified by the Commissioner. Such increased frequency shall also be indicated.

1.3.3. Falsifying Results and/or Reports

Knowingly making any false statement on any report required by this permit or falsifying any result may result in the imposition of criminal penalties as provided for in Section 309 of the Federal Water Pollution Control Act, as amended, and in § 69-3-115 of the Tennessee Water Quality Control Act.

1.3.4. Upset and Bypass Reporting

1.3.4.1. Event Report Requirements

For the purpose of this section, "events" are known as instances of upsets and bypasses. These events shall be reported through MyTDEC Forms according to the following conditions:

a) Events that are not a threat to human health and the environment shall be reported using MyTDEC Forms no later than 15 days following the completion of the DMR or MOR reporting period.

b) Events that could cause a threat to human health or the environment, as defined in **Section 2.3.1.a**., shall be reported using MyTDEC Forms no later than 5 days after becoming aware of the non-compliance.

In both cases, the event report must contain the following:

i. Start date;
ii. Estimated duration in hours;
iii. Estimated volume in gallons;
iv. Type of event;
v. Type of structure;
vi. Types of human health and environmental impacts~~;~~
vii. Location (i.e. latitude and longitude);
viii. The name of receiving water (if applicable);
ix. Description of the cause; and
x. The steps being taken to correct, reduce, eliminate, and prevent recurrence of the noncompliance;

In the event that MyTDEC Forms is not functioning, the permittee shall comply with reporting conditions provided in **Section 1.6**.

1.3.5. Reporting Less Than Detection; Reporting Significant Figures

For the purpose of evaluating compliance with the permit limits established herein, where certain limits are below the minimum level (ML) of 40 CFR § 136 approved analytical methods, compliance will be demonstrated when a non-detect result is obtained using the most sensitive method available. The results of non-detect analyses, in this case, shall be reported as Below Detection Limit (BDL) or "NODI = B" in NetDMR. Reporting examples are provided below.

Reporting Example 1: If the permit limit is 0.02 mg/L with a method detection limit (MDL) of 0.05 mg/L and no detection is shown, the permittee must report "BDL" or "NODI = B" on DMRs in NetDMR. Whenever "BDL" or "NODI = B" is reported, the actual MDL must be reported in the DMR comments or in an attachment submitted in NetDMR.

Reporting Example 2: If the permit limit is 0.02 mg/L with an MDL of 0.05 mg/L and detection is shown, the actual detected value must be reported.

Reporting Example 3: If the permit limit is 0.02 mg/L with an MDL of 0.01 mg/L and no detection is shown, the permittee must report less than MDL (<0.01 mg/L in this case).

For purposes of calculating monthly averages, zero may be assigned for values less than the MDL, the numeric value of the MDL may be assigned for values between the MDL and the ML. If the average value is less than the MDL, the permittee must report “less than {numeric value of the MDL}" and if the average value is less than the ML, the permittee must report "less than {numeric value of the ML}.” If a value is equal to or greater than the ML, the permittee must report and use the actual value. The resulting average value must be compared to the compliance level, the ML, in assessing compliance.

Reported results are to correspond to the number of significant figures (decimal places) set forth in the permit conditions. The permittee shall round values, if allowed by the method of sample analysis, using a uniform rounding convention adopted by the permittee.

1.4. REOPENER CLAUSE

This permit shall be modified, or alternatively revoked and reissued, to comply with any applicable effluent standard or limitation issued or approved under Sections 301(b)(2)(C) and (D), 307(a)(2), and 405(d)(2)(D) of the Clean Water Act, as amended, if the effluent standard, limitation, or sludge disposal requirement so issued or approved:

a) Contains different conditions or is otherwise more stringent than any condition in the permit; or

b) Controls any pollutant or disposal method not addressed in the permit.

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

1.5. SCHEDULE OF COMPLIANCE

Full compliance and operational levels for all parameters except ammonia shall be attained from the effective date of this permit. The permit limits of 1.0 mg/l (summer- monthly average), 1.5 mg/l (summer- daily maximum) and 1.9 mg/l (winter- monthly average) for Nitrogen, Ammonia total (as N) will become effective on January 1, 2025. By December 31, 2023, the permittee shall submit a report to Water.Permits@tn.gov detailing the following:

• Activities necessary to achieve compliance with the ammonia limits.

• Completion or projected completion dates of each activity.

1.6. ELECTRONIC REPORTING

This permit requires the submission of forms developed by the Director in order for a person to comply with certain requirements, including, but not limited to, making reports, submitting monitoring results, and applying for permits. The Director may make these forms available electronically and, if submitted electronically, then that electronic submission shall comply with the requirements of Chapter 0400-01-40. Electronic submission is required when available unless waived by the Commissioner in accordance with 40 CFR § 127.15.

In the event of large-scale emergencies and/or prolonged electronic reporting system outages, an episodic electronic reporting waiver may be granted by the Commissioner in accordance with 40 CFR § 127.15. A request for a deadline extension or episodic electronic reporting waiver should be submitted to DWRWater.Compliance@tn.gov, in compliance with the Federal NPDES Electronic Reporting Rule.

If an episodic electronic reporting waiver is granted, reports with wet-ink original signatures shall be mailed to the following address:

STATE OF TENNESSEE
DEPARTMENT OF ENVIRONMENT AND CONSERVATION
DIVISION OF WATER RESOURCES
COMPLIANCE & ENFORCEMENT UNIT
William R. Snodgrass - Tennessee Tower
312 Rosa L. Parks Avenue, 11th Floor
Nashville, Tennessee 37243-1102

For purposes of determining compliance with this permit, data provided to the Division electronically is legally equivalent to data submitted on signed and certified forms. A copy must be retained for the permittee's files.

PART 2

2. GENERAL PERMIT REQUIREMENTS

2.1. GENERAL PROVISIONS

2.1.1. Duty to Comply

The permittee shall comply with all conditions of this permit. Any permit noncompliance constitutes a violation of the Water Quality Control Act and is grounds for enforcement action; for permit termination, revocation and reissuance, or modification; or denial of a permit renewal application.

2.1.2. Duty to Reapply

The permittee is not authorized to discharge after the expiration date of this permit. In order to receive authorization to discharge beyond the expiration date, the permittee shall submit such information and forms as are required to the Division Director no later than 180 days prior to the expiration date. Such forms shall be properly signed and certified.

2.1.3. Proper Operation and Maintenance

a) The permittee shall, at all times, properly operate and maintain all facilities and systems (and related appurtenances) for collection and treatment which are installed or used by the permittee to achieve compliance with the terms and conditions of this permit. Proper operation and maintenance also includes adequate laboratory and process controls and appropriate quality assurance procedures. This provision requires the operation of backup or auxiliary facilities or similar systems, which are installed by a permittee only when the operation is necessary to achieve compliance with the conditions of the permit. Backup continuous pH and flow monitoring equipment are not required.

b) Dilution water shall not be added to comply with effluent requirements to achieve BCT, BPT, BAT, or other technology based effluent limitations such as those established in Tennessee Rule 0400-40-05-.09.

2.1.4. Duty to Provide Information

The permittee shall also furnish to the Director, upon request, copies of records required to be kept by this permit.

2.1.5. Right of Entry

The permittee shall allow the Director, the Regional Administrator of the U.S. Environmental Protection Agency, or their authorized representatives, upon the presentation of credentials, to:

a) Enter upon the permittee's premises where a regulated facility or activity is located or conducted, or where records shall be kept under the conditions of this permit;

b) Have access to and copy, at reasonable times, any records that shall be kept under the conditions of this permit;

c) Inspect at reasonable times any facilities, equipment (including monitoring and control equipment), practices, or operations regulated or required under this permit; and

d) Sample or monitor at reasonable times for the purposes of assuring permit compliance or as otherwise authorized by the Director.

2.1.6. Availability of Reports

Except for data determined to be confidential under Section 308 of the Federal Water Pollution Control Act, as amended, all reports prepared in accordance with the terms of this permit shall be available for public inspection at the Division's offices or via the Department's dataviewer webpage. As required by the Federal Act, effluent data shall not be considered confidential.

2.1.7. Treatment Facility Failure (Industrial Sources)

The permittee, in order to maintain compliance with this permit, shall control production, all discharges, or both, upon reduction, loss, or failure of the treatment facility until the facility is restored or an alternative method of treatment is provided. This requirement applies in such situations as the reduction, loss, or failure of the primary source of power.

2.1.8. Property Rights

The issuance of this permit does not convey any property rights in either real or personal property, or any exclusive privileges, nor does it authorize any injury to private property or any invasion of personal rights, nor any infringement of federal, state, or local laws or regulations.

2.1.9. Severability

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

2.1.10. Other Information

If the permittee becomes aware of failure to submit any relevant facts in a permit application, or of submission of incorrect information in a permit application or in any report to the Director, then the permittee shall promptly submit such facts or information.

2.2. CHANGES AFFECTING THE PERMIT

2.2.1. Planned Changes

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

a) The alteration or addition to a permitted facility may meet one of the criteria for determining whether a facility is a new source as defined in Rule 0400-40-05-.02;

b) The alteration or addition could significantly change the nature or increase the quantity of pollutants discharged. This notification applies to pollutants which are subject neither to effluent limitations in the permit nor to notification requirements under 40 CFR § 122.42(a)(1); or

c) The alteration or addition results in a significant change in the permittee's sludge use or disposal practices.

2.2.2. Permit Modification, Revocation, or Termination

a) This permit may be modified, revoked and reissued, or terminated for cause as described in 40 CFR § 122.62 and § 122.64, Federal Register, Volume 49, No. 188 (Wednesday, September 26, 1984), as amended. Causes for such permit action include but are not limited to the following:

   i. Violation of any terms or conditions of the permit;
   ii. Obtaining a permit by misrepresentation or failure to disclose fully all relevant facts; and
   iii. A change in any condition that requires either a temporary or permanent reduction or elimination of the permitted discharge.

b) The permittee shall furnish to the Director, within a reasonable time, any information which the Director may request to determine whether cause exists for modifying, revoking and reissuing, or terminating this permit, or to determine compliance with this permit.

c) If any applicable effluent standard or prohibition (including any schedule of compliance specified in such effluent standard or prohibition) is established for any toxic pollutant under Section 307(a) of the Federal Water Pollution Control Act, as amended, the Director shall modify or revoke and reissue the permit to conform to the prohibition or to the effluent standard, providing that the effluent standard is more stringent than the limitation in the permit for the toxic pollutant. The permittee shall comply with these effluent standards or prohibitions within the time provided in the regulations that establish these standards or prohibitions, even if the permit has not yet been modified or revoked and reissued to incorporate the requirement.

d) The filing of a request by the permittee for a modification, revocation, reissuance, termination, or notification of planned changes or anticipated noncompliance does not halt any permit condition.

2.2.3. Change of Ownership

Except as provided in Tennessee Rule Chapter 0400-40-05-.06(5)(a) or (b), this permit may be transferred to another party (provided there are neither modifications to the facility or its operations, nor any other changes which might affect permit limits and conditions contained in the permit) by the permittee if:

a) The permittee notifies the Director of the proposed transfer at least 30 days in advance of the proposed transfer date;

b) The notice includes a written agreement between the existing and new permittees containing a specified date for transfer of permit responsibility, coverage, and liability between them; and

c) The permittee shall provide the following information to the Director in their formal notice of intent to transfer ownership:

i. The permit number of the subject permit;
ii. The effective date of the proposed transfer;
iii. The name, address, and contact information of the transferor;
iv. The name, address, and contact information of the transferee;

v. The names of the responsible parties for both the transferor and transferee;
vi. A statement that the transferee assumes responsibility for the subject permit;
vii. A statement that the transferor relinquishes responsibility for the subject permit;
viii. The signatures of the responsible parties for both the transferor and transferee pursuant to the signatory requirements of subparagraph (i) of Rule 0400-40-05-.07(2); and
ix. A statement regarding any proposed modifications to the facility, its operations, or any other changes, which might affect the permit, limits and conditions contained in the permit.

2.2.4. Change of Mailing Address

The permittee shall promptly provide to the Director written notice of any change of mailing address. In the absence of such notice, the original address of the permittee will be assumed to be correct.

2.3. NONCOMPLIANCE

2.3.1. Reporting of Noncompliance

a) 24-hour Reporting:

In the case of any noncompliance which could cause a threat to public drinking supplies or any other discharge which could constitute a threat to human health or the environment, the required notice of non-compliance shall be provided to the Division of Water Resources in the appropriate EFO within 24 hours from the time the permittee becomes aware of the circumstances. The EFO should be contacted for names and phone numbers of the environmental response team.

A written submission must be provided via MyTDEC Forms[2], if available, within five days of the time the permittee becomes aware of the circumstances unless the Director on a case-by-case basis waives this requirement. The permittee shall provide the Director with the following information:

i. A description of the discharge and cause of noncompliance;

[2] If this particular form is not available in MyTDEC Forms, please submit the report per Section 1.3.1.

ii. The period of noncompliance, including exact dates and times or, if not corrected, the anticipated time the noncompliance is expected to continue; and
iii. The steps being taken to reduce, eliminate, and prevent recurrence of the noncomplying discharge.

b) Scheduled Reporting:

For instances of noncompliance which do not cause a threat to public drinking supplies, or any other discharge which could constitute a threat to human health or the environment, the permittee shall report the noncompliance on the MOR. The report shall contain all information concerning the steps taken, or planned, to reduce, eliminate, and prevent recurrence of the violation and the anticipated time the violation is expected to continue.

2.3.2. Upset

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

b) An upset shall constitute an affirmative defense to an action brought for noncompliance with such technology-based permit effluent limitations if the permittee demonstrates, through properly signed, contemporaneous operating logs, or other relevant evidence that:

i. An upset occurred and that the permittee can identify the cause(s) of the upset;
ii. The permitted facility was at the time being operated in a prudent and workman-like manner and in compliance with proper operation and maintenance procedures;
iii. The permittee submitted information required under "Reporting of Noncompliance" within 24 hours of becoming aware of the upset (if this information is provided orally, a written submission must be provided within five days); and
iv. The permittee complied with any remedial measures required under "Adverse Impact".

2.3.3. Adverse Impact

The permittee shall take all reasonable steps to minimize any adverse impact to the waters of Tennessee resulting from noncompliance with this permit, including such accelerated or additional monitoring as necessary to determine the nature and impact of the noncomplying discharge. It shall not be a defense for the permittee in an enforcement action that it would have been necessary to halt or reduce the permitted activity in order to maintain compliance with the conditions of this permit.

2.3.4. Bypass

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

b) Bypasses are prohibited unless all the following conditions are met:

   i. The bypass is unavoidable to prevent loss of life, personal injury, or severe property damage;
   ii. There are no feasible alternatives to bypass, such as the use of auxiliary treatment facilities, retention of untreated wastes, or maintenance during normal periods of equipment downtime. This condition is not satisfied if adequate back-up equipment should have been installed in the exercise of reasonable engineering judgment to prevent a bypass which occurred during normal periods of equipment downtime or preventative maintenance; and
   iii. For anticipated bypass, the permittee submits prior notice, if possible at least ten days before the date of the bypass, or for unanticipated bypass, the permittee submits notice of an unanticipated bypass within 24 hours from the time that the permittee becomes aware of the bypass.

c) Bypasses that do not cause effluent limitations to be exceeded may be allowed only if the bypass is necessary for essential maintenance to assure efficient operation and are not subject to the reporting requirements of part b) iii. above.

2.3.5. Washout

a) For domestic wastewater plants only, a "*washout*" shall be defined as loss of Mixed Liquor Suspended Solids (MLSS) of 30.00% or more. This refers to the MLSS in the aeration basin(s) only. This does not include MLSS decreases due to solids wasting to the sludge disposal system. A washout can be caused by improper operation or from peak flows due to inflow and infiltration.

b) A washout is prohibited. If a washout occurs the permittee must report the incident to the Division in the appropriate EFO within 24 hours by telephone. A written submission must be provided within five days. The washout must be noted on that month's DMR. Each day of a washout is a separate violation.

2.4. LIABILITIES

2.4.1. Civil and Criminal Liability

Except as provided in permit conditions for "*Bypass*" (**Section 2.3.4**) and "*Upset*" (**Section 2.3.2**), nothing in this permit shall be construed to relieve the permittee from civil or criminal penalties for noncompliance. Notwithstanding this permit, the permittee shall remain liable for any damages sustained by the State of Tennessee, including, but not limited to, fish kills and losses of aquatic life and/or wildlife as a result of the discharge of wastewater to any surface or subsurface waters. Additionally, notwithstanding this permit, it shall be the responsibility of the permittee to conduct its wastewater treatment and/or discharge activities in a manner such that public or private nuisances or health hazards will not be created.

2.4.2. Liability Under State Law

Nothing in this permit shall be construed to preclude the institution of any legal action or relieve the permittee from any responsibilities, liabilities, or penalties established pursuant to any applicable state law or the Federal Water Pollution Control Act, as amended.

PART 3

3. PERMIT SPECIFIC REQUIREMENTS

3.1. CERTIFIED OPERATOR

The waste treatment facilities shall be operated under the supervision of a certified wastewater treatment operator in accordance with the Water Environmental Health Act of 1984.

3.2. SLUDGE MANAGEMENT PRACTICES

The permittee must comply with the provisions of 40 CFR § 503. If the sludge is transported to another POTW for disposal, the permittee shall note on the MOR the amount of sludge wasted in gallons, percent (%) solids of sludge wasted, and the name of the facility to which the sludge was taken.

3.3. PLACEMENT OF SIGNS

Within 60 days of the effective date of this permit, the permittee shall place and maintain a sign at each outfall and any overflow/release point in the collection system or the nearest publicly accessible location. For the purposes of this requirement, any point that has had a total of 5 or more overflows plus releases in the previous 12 months must be so posted. The sign(s) should be clearly visible to the public from the bank and the receiving stream. The *minimum* sign size should be two feet by two feet (2' x 2') with one-inch (1") letters. The sign should be made of durable material and have a white background with black letters.

The sign(s) are to provide notice to the public as to the nature of the discharge and, in the case of the permitted outfalls, that the discharge is regulated by the Tennessee Department of Environment and Conservation, Division of Water Resources. The following are given as examples of the minimal amount of information that must be included on the signs:

NPDES Permitted Domestic Outfall:

TREATED DOMESTIC WASTEWATER
Anderson County Water Authority
ACWA Airbase STP
(865) 803-1742
NPDES Permit NO. TN0074071
TENNESSEE DIVISION OF WATER RESOURCES
1-888-891-8332 ENVIRONMENTAL FIELD OFFICE - Knoxville

3.4. ADDITION OF WASTELOADS

The permittee may not add wasteloads to the existing treatment system without the knowledge and approval of the Division.

PART 4

4. DEFINITIONS AND ACRONYMS

4.1. DEFINITIONS

For the purposes of this permit, ***annually*** is defined as a monitoring frequency of once every 12 months beginning with the effective date of this permit, so long as the following set of measurements for a given 12 month period are made approximately 12 months subsequent to that time.

A ***bypass*** is defined as the intentional diversion of waste streams from any portion of a treatment facility.

A ***calendar day*** is defined as the 24-hour period from midnight to midnight or any other 24-hour period that reasonably approximates the midnight to midnight time period.

A ***composite sample*** is a combination of not less than 8 influent or effluent portions, of at least 100 mL, collected over a 24-hour period. Under certain circumstances a lesser time period may be allowed, but in no case less than 8 hours.

The ***daily maximum amount*** is a limitation, measured in units of weight per time (*e.g.* pounds per day), on the total amount of any pollutant in the discharge during any calendar day.

The ***daily maximum concentration*** is a limitation on the average concentration in units of mass per volume (*e.g.* milligrams per liter) of the discharge during any calendar day. When a proportional-to-flow composite sampling device is used, the daily maximum concentration is the concentration of that 24-hour composite; when other sampling means are used, the daily maximum concentration is the arithmetic mean of the concentrations of equal volume samples collected during any calendar day or sampling period.

Degradation means the alteration of the properties of waters by the addition of pollutants, withdrawal of water, or removal of habitat, except those alterations of a short duration.

De Minimis is degradation of a small magnitude, as provided in this paragraph:

(a) Discharges and withdrawals:

1. Subject to the limitation in part 3 of this subparagraph, a single discharge other than those from new domestic wastewater sources will be considered de minimis if it uses less than five percent of the available assimilative capacity for the substance being discharged.
2. Subject to the limitation in part 3 of this subparagraph, a single water withdrawal will be considered de minimis if it removes less than five percent of the 7Q10 flow of the stream.
3. If more than one activity described in part 1 or 2 of this subparagraph has been authorized in a segment and the total of the authorized and proposed impacts uses no more than 10% of the assimilative capacity, or 7Q10 low flow, they are presumed to be de minimis. Where the total of the authorized and proposed impacts uses 10% of the assimilative capacity, or 7Q10 low flow, additional degradation may only be treated as de minimis if the Division finds on a scientific basis that the additional degradation has an insignificant effect on the resource.

(b) Habitat alterations authorized by an Aquatic Resource Alteration Permit (ARAP) are de minimis if the Division finds that the impacts, individually and cumulatively, are offset by impact minimization and/or in-system mitigation, provided however, in Outstanding National Resource Waters (ONRWs) the mitigation must occur within the ONRW.

Discharge or ***discharge of a pollutant*** refers to the addition of pollutants to waters from a source.

The ***geometric mean*** of any set of values is the n^{th} root of the product of the individual values where "n" is equal to the number of individual values. The geometric mean is equivalent to the antilog of the arithmetic mean of the logarithms of the individual values. For the purposes of calculating the geometric mean, values of zero (0) shall be considered to be one (1).

A ***grab sample*** is a single influent or effluent sample collected at a particular time.

The ***instantaneous maximum concentration*** is a limitation on the maximum concentration, in units of mass per volume (*e.g.* milligrams per liter), of any pollutant contained in the wastewater discharge determined from a grab sample taken from the discharge at any point in time.

The ***instantaneous minimum concentration*** is the minimum allowable concentration, in units of mass per volume (*e.g.* milligrams per liter), of a pollutant parameter contained in the wastewater discharge determined from a grab sample taken from the discharge at any point in time.

The ***monthly average amount*** is the arithmetic mean of all the measured daily discharges by weight during the calendar month when the measurements were made.

The ***monthly average concentration***, a limitation on the discharge concentration in units of mass per volume, of any pollutant, other than bacteria, is the arithmetic mean of all the composite or grab samples collected in a one calendar-month period.

A ***one-week period*** (or ***calendar-week***) is defined as the period from Sunday through Saturday. For weekly average reporting purposes, a calendar week that contains a change of month shall be considered part of the latter month.

Pollutant means sewage, industrial wastes, or other wastes.

A ***quarter*** is defined as any one of the following three-month periods: January 1 through March 31, April 1 through June 30, July 1 through September 30, and/or October 1 through December 31.

A ***rainfall event*** is defined as any occurrence of rain preceded by 10 hours without precipitation that results in an accumulation of 0.01 inches or more. Instances of rainfall occurring within 10 hours of each other will be considered a single rainfall event.

A ***rationale*** (or ***fact sheet***) is a document that is prepared when drafting an NPDES permit or permit action. It provides the technical, regulatory and administrative basis for an agency's permit decision.

The term ***semi-annually,*** for the purposes of this permit, means the same as once every 6 months. Measurements of the limited effluent parameters may be made any time during a 6 month period beginning from the effective date of this permit, so long as the second set of measurements for a given 12 month period are made approximately 6 months subsequent to that time, if feasible.

Sewage means water-carried waste or discharges from human beings or animals, from residences, public or private buildings, or industrial establishments, or boats, together with such other wastes and ground, surface, storm, or other water as may be present.

Severe property damage, when used to consider the allowance of a bypass, means substantial physical damage to property, damage to the treatment facilities which causes them to become inoperable, or substantial and permanent

loss of natural resources which can reasonably be expected to occur in the absence of a bypass. Severe property damage does not mean economic loss caused by delays in production.

Sewerage system means the conduits, sewers, and all devices and appurtenances by means of which sewage and other waste is collected, pumped, treated, or disposed.

Sludge or ***sewage sludge*** is solid, semi-solid, or liquid residue generated during the treatment of domestic sewage in a treatment works. Sewage sludge includes, but is not limited to, domestic septage; scum or solids removed in primary, secondary, or advanced wastewater treatment processes; and a material derived from sewage sludge. Sewage sludge does not include ash generated during the firing of sewage sludge in a sewage sludge incinerator or grit and screenings generated during preliminary treatment of domestic sewage in a treatment works.

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

The term ***washout*** is applicable to domestic wastewater activated sludge plants and is defined as loss of mixed liquor suspended solids (MLSS) of 30.00% or more from the aeration basin(s).

Waters means any and all water, public or private, on or beneath the surface of the ground, which are contained within, flow through, or border upon Tennessee or any portion thereof, except those bodies of water confined to and retained within the limits of private property in single ownership which do not combine or effect a junction with natural surface or underground waters.

The ***weekly average amount*** is the sum of all the measured daily discharges by weight divided by the number of days during the calendar week when the measurements were made.

The ***weekly average concentration*** is the highest arithmetic mean of all the composite samples collected in a one-week period in a month.

4.2. ACRONYMS AND ABBREVIATIONS

1Q10 – 1-day minimum, 10-year recurrence interval
30Q5 – 30-day minimum, 5-year recurrence interval
7Q10 – 7-day minimum, 10-year recurrence interval
BAT – best available technology economically achievable
BCT – best conventional pollutant control technology
BDL – below detection limit
BOD_5 – five-day biochemical oxygen demand
BPT – best practicable control technology currently available
$CBOD_5$ – five-day carbonaceous biochemical oxygen demand
CEI – compliance evaluation inspection
CFR – code of federal regulations
CFU – colony forming units
CSO – combined sewer overflow
DMR – discharge monitoring report
D.O. – dissolved oxygen
E. coli – *Escherichia coli*
EPA – Environmental Protection Agency
EFO – environmental field office
GPM – gallons per minute
LB (lb) – pound
MDL – method detection limit
MGD – million gallons per day
mg/L – milligrams per liter
ML – minimum level of quantification
mL – milliliter
MLSS – mixed liquor suspended solids
MOR – monthly operating report
NPDES – national pollutant discharge elimination system
PL – permit limit
POTW – publicly owned treatment works
SSO – sanitary sewer overflow
STP – sewage treatment plant
TBEL – technology-based effluent limit
TCA – Tennessee code annotated
TDEC – Tennessee Department of Environment and Conservation
TIE/TRE – toxicity identification evaluation/toxicity reduction evaluation
TMDL – total maximum daily load
TRC – total residual chlorine
TSS – total suspended solids
WQBEL – water quality-based effluent limit

4.3. RESOURCES, HYPERLINKS, AND WEB PAGES

Electronic Code of Federal Regulations (eCFR), Title 40 (40 CFR § 1 through § 1099)
https://www.ecfr.gov/cgi-bin/text-idx?SID=75202eb5d09974cab585afeea981220b&mc=true&tpl=/ecfrbrowse/Title40/40chaperl.tpl

Electronic Reporting (NetDMR) Waiver Request
https://www.tn.gov/content/dam/tn/environment/water/documents/wr_ereporting_waiver.pdf

NetDMR Login
https://cdxnodengn.epa.gov/net-netdmr/

NetDMR, MyTDEC Forms, & Electronic Reporting Information
https://www.tn.gov/environment/program-areas/wr-water-resources/netdmr-and-electronic-reporting.html

NPDES Compliance Inspection Manual (EPA)
https://www.epa.gov/sites/production/files/2017-01/documents/npdesinspect.pdf

NPDES Electronic Reporting Rule
https://www.federalregister.gov/documents/2015/10/22/2015-24954/national-pollutant-discharge-elimination-system-npdes-electronic-reporting-rule

Rules of the TN Department of Environment and Conservation, Chapter 0400-40
https://publications.tnsosfiles.com/rules/0400/0400-40/0400-40.htm

TDEC Water Quality Rules, Reports, and Publications
https://www.tn.gov/environment/program-areas/wr-water-resources/water-quality/water-quality-reports---publications.html

Technical Support Document for Water Quality-based Toxics Control (EPA)
https://www3.epa.gov/npdes/pubs/owm0264.pdf

Tennessee Water Resources Data and Map Viewers
https://www.tn.gov/environment/program-areas/wr-water-resources/water-quality/water-resources-data-map-viewers.html

USGS StreamStats
https://www.usgs.gov/mission-areas/water-resources/science/streamstats-streamflow-statistics-and-spatial-analysis-tools?qt-science_center_objects=0#qt-science_center_objects

USGS SWToolbox
https://www.usgs.gov/software/swtoolbox-software-information

RATIONALE

Anderson County Water Authority
ACWA Airbase STP
NPDES Permit No. TN0074071
Date: 10/25/2022
Permit Writer: Maybelle T. Sparks, P.E.

1. DISCHARGER INFORMATION

Permittee Name:	**Anderson County Water Authority**
Project Name:	**ACWA Airbase STP**
Location:	650 Slatestone Rd., Briceville, Anderson County, Tennessee
Contact:	Mr. Gary Sharp - Waste Water Superintendent (865) 803-1742 garyacwa@gmail.com
Design Flow:	0.01 MGD
Treatment Description:	Septic tank,recirculating sand filter and ultraviolet disinfection
Certified Operator Grades:	STP: BNS; CS: NA; Date Rated: NA (est. by 0400-49-01-.08(4))
Discharge Type:	Domestic

2. RECEIVING STREAM INFORMATION

Receiving Waterbody:	**Slatestone Creek at mile 1.5**
Watershed Group:	Clinch-Lower
Hydrocode:	6010207
Low Flow:	7Q10 = 0 MGD (0 CFS)
Low Flow Reference:	USGS StreamStats

Stream Designated Uses:

Domestic Water Supply	*Industrial*	*Fish & Aquatic Life*	*Recreation*
		X	**X**
Livestock & Wildlife	*Irrigation*	*Navigation*	*Trout*
X	**X**		

Low flows on unregulated streams are estimated using guidance from the EPA document *Low Flow Statistics Tools: A How-To Handbook for NPDES Permit Writers*. When sufficient and representative USGS gage data is available, USGS SWToolbox is used to analyze the flow data and calculate 7Q10 and 30Q5 values. Using these

low flow values at the gage, the permit writer then determines the flow at the point of discharge using the following equation:

$$Q_{outfall} = Q_{gage} \times \frac{A_{outfall}}{A_{gage}}$$

Where:

$Q_{outfall}$ = Low flow statistic at outfall location
Q_{gage} = Low flow statistic at gage location
$A_{outfall}$ = Area draining to outfall
A_{gage} = Area draining to gage

In the absence of sufficient gage data, the Division relies on USGS Streamstats to calculate low flows statistics.

In this permit, no sufficient gage data is available to characterize the receiving stream. Thus, USGS Streamstats was used to delineate the critical low flow at the point of discharge.

3. PREVIOUS PERMIT

Permit Type:	Domestic
Issuance Date:	1-Feb-19
Expiration Date:	28-Feb-23
Effective Date:	1-Mar-19

See below for previous permit limits.

PARAMETER	Units	MONTHLY AVERAGE CONCENTRATION	DAILY MAXIMUM CONCENTRATION
$CBOD_5$	mg/L	20	25
NH_3-N (*summer*)	mg/L	1.5	2
NH_3-N (*winter*)	mg/L	2.1	3
Total Suspended Solids	mg/L	30	45
Dissolved Oxygen	mg/L	5.0 (daily minimum)	
Total Residual Chlorine	mg/L		0.02
E. coli	MPN/100 mL	126	941
Settleable Solids	mL/L		1.0
pH	SU	6.0 - 9.0	
Flow (MGD):	MGD	Report	Report

4. NEW PERMIT LIMITATIONS AND COMPLIANCE SCHEDULE SUMMARY

The conditions under which this permit was previously issued have changed.

The units for *E. coli* have been standardized to number per 100 mL (#/100 mL). Previously, the Division used either MPN/100 mL or CFU/100 mL. The identification of one of these two units indirectly created a requirement for a specific type of testing methodology. By utilizing #/100 mL unit, permittees are provided the flexibility to select the 40 CFR § 136 method that is most suitable for their operations. The limit value (number) will remain the same as the limit units are functionally equivalent.

Updated water quality criteria for ammonia were adopted in Tennessee Rule 0400-40-03-.03-3(3)(j) on September 11, 2019. These updated criteria have been implemented in the proposed permit, resulting in new ammonia limits. For the permittee to meet the new limits, this permit provides a compliance schedule. See **section 5.4** for more information.

5. PROPOSED EFFLUENT LIMITS AND RATIONALE

PARAMETERS	MONTHLY AVERAGE CONCENTRATION (MG/L)	MONTHLY AVERAGE AMOUNT (LB/DAY)	WEEKLY AVERAGE CONCENTRATION (MG/L)	WEEKLY AVERAGE AMOUNT (LB/DAY)	DAILY MAXIMUM CONCENTRATION (MG/L)	DAILY MAXIMUM AMOUNT (LB/DAY)	RATIONALE
$CBOD_5$	20	—	—	—	25	—	D.O. protection, Refer to 5.1 below
NH_3-N (summer)	1.5	—	—	—	2	—	D.O. protection, Refer to 5.4 below
NH_3-N (winter)	2.1	—	—	—	3	—	D.O. protection, Refer to 5.4 below
NH_3-N (summer)	1.0	—	—	—	1.5	—	Ammonia Toxicity, Refer to 5.4 below **Effective January 1, 2025**
NH_3-N (winter)	1.9	—	—	—	3	—	Ammonia Toxicity, Refer to 5.4 below **Effective January 1, 2025**
Total Suspended Solids	30	—	—	—	45	—	Rule 0400-40-05-.09
Dissolved Oxygen	5.0 (daily minimum) instantaneous	—	—	—	—	—	D.O. protection, Refer to 5.1 below
Total Chlorine Residual	—	—	—	—	0.02	—	Refer to 5.5 below
E. coli (#/100mL)	126/100 mL	—	—	—	941/100 mL	—	Rule 0400-40-03-.03, Refer to 5.7 below
Settleable Solids (mL/L)		—	—	—	1.0	—	Rule 0400-40-05-.09
pH (standard units)	6.0 - 9.0	—	—	—	—	—	Rule 0400-40-03-.03
Flow (MGD):							
Effluent	Report	—	—	—	Report	—	Used to quantify pollutant load

Note: Weekly limitations on $CBOD_5$ and TSS concentrations are given as required per 40 CFR 133.105(a)(2) or 133.105(e)(1)(ii) & 133.105(b)(2) respectively; daily $CBOD_5$ and TSS limitations are authorized by T.C.A. 0400-40-05-.09; monthly, weekly, and daily mass loads are limited per 40 CFR 122.45(f) and based on the design flow as per 40 CFR 122.45(b); monthly average percent removal rates for $CBOD_5$ are required per 40 CFR 133.105(a)(3) and 133.105(e)(1)(iii). Monthly average percent removals for TSS are established per 40 CFR 133.105 (b)(3) and 133.103(c).

The effluent is disinfected via ultraviolet radiation. A daily maximum limit of 0.02 mg/l for residual chlorine will be applied only if chlorine is used for disinfection.

5.1. CONVENTIONAL PARAMETERS

5.1.1. $CBOD_5$ and Dissolved Oxygen

This permit retains the previous permit limits for $CBOD_5$ and dissolved oxygen. The previously established limits were determined during a previous permit cycle and are more protective than technology-based effluent limits established in Rule 0400-40-05(1)(a).

5.1.2. Settleable Solids

According to Rule 0400-40-05-.09(1)(a), the concentration of settleable solids shall not exceed 1.0 mL/L.

5.1.3. Total Suspended Solids

Total Suspended Solids (TSS) is a general indicator of the quality of a wastewater and will be limited in this permit. The monthly average and daily maximum TSS limits of 30 mg/L and 45 mg/L are technology-based effluent limits for conventional secondary treatment plants (Rule 0400-40-05-.09(1)(a)).

5.2. FLOW

Monitoring of flow quantifies the load of pollutants to the stream. Flow shall be reported in million gallons per day (MGD) and monitored at the time of sample collection.

5.3. PH

According to the State of Tennessee Water Quality Standards (Chapter 0400-40-03-.03(3)(b)), the pH for the protection of Fish and Aquatic Life shall not fluctuate more than 1.0 unit over a period of 24 hours and shall not be outside the following ranges: 6.0 – 9.0 standard units (SU) in wadeable streams and 6.5 – 9.0 SU in larger rivers, lakes, reservoirs, and wetlands.

5.4. AMMONIA (NH_3-N) TOXICITY

To assess ammonia toxicity impacts, the state utilizes Tennessee Rules, Chapter 0400-40-03-.03-3(3)(j), dated September 11, 2019, to derive allowable instream protection values protective of chronic and acute exposures to a continuous discharge. A mass balance equation with the treatment facility, stream flows, and these allowable values determines the monthly average and daily maximum permit limits.

The temperature used in calculations is determined based on measured ambient instream temperature or is estimated according to Tennessee's Three Grand Divisions as follows: East (winter 15°C, summer 25°C), Middle (winter 17°C, summer 27°C), and West (winter 20°C, summer 30°C).

Using estimated temperature and pH values, the criterion continuous concentration (CCC) and criterion maximum concentration (CMC) values are calculated using the following equations:

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

and

$$CMC = MIN\left\{\begin{array}{c}\left(\frac{0.275}{1+10^{7.204-pH}} + \frac{39.0}{1+10^{pH-7.204}}\right), \\ \left(0.7249 * \left(\frac{0.0114}{1+10^{7.204-pH}} + \frac{1.6181}{1+10^{pH-7.204}}\right) * \left(23.12 * 10^{0.036*(20-T)}\right)\right)\end{array}\right\}$$

The determined CCC and CMC values are then used in the mass balance equation as follows:

$$CCC = \frac{Q_S C_S + Q_{STP} C_{STP}}{Q_S + Q_{STP}} \quad \text{or} \quad C_{STP} = \frac{CCC(Q_S + Q_{STP}) - (Q_S C_S)}{Q_{STP}}$$

where:

CCC	=	Criteria continuous concentration (mg/L)
Q_S	=	7Q10 flow of receiving stream (MGD)
Q_{STP}	=	Design flow of STP (MGD)
C_S	=	Assumed/Measured instream NH_3 (mg/L)
C_{STP}	=	Allowable STP discharge of NH_3 (mg/L)

See below for calculations:

CCC Calculation: Chronic Limits

Winter		Summer	
Temp (°C)=	15	Temp (°C)=	25
pH=	7.5	pH=	7.5
MAX Expression	15.0000	MAX Expression	25.0000
Winter CCC=	**1.92**	Summer CCC=	**1.01**

CCC - Continuous Chronic Criterion Allowable instream NH3 concentration [mg/l]

$$CCC = \frac{(\text{Critical Low Flow [MGD]} * \text{Background Ammonia [mg/L]}) + (\text{Design Flow [MGD]} * \textbf{Effluent Concentration [mg/L]})}{(\text{Critical Low Flow [MGD]} + \text{Design Flow [MGD]})}$$

where:	0.0	Critical Low Flow [MGD] (7Q10 value)
	0.1	Background Ammonia Concentration [mg/L]
	0.01	WWTP Design Flow or long-term average flow [MGD]

Therefore, the Allowable **Monthly Average Effluent Concentrations** and corresponding **Amounts** in winter and summer are:

Winter		Summer	
1.9	Concentration [mg/L]	**1.0**	Concentration [mg/L]
0.2	Amount [lb/day]	**0.1**	Amount [lb/day]

CMC Calculation: Acute Limits

Winter		Summer	
Temp (°C)=	15	Temp (°C)=	25
pH=	7.5	pH=	7.5
MAX Expression	15.0000	MAX Expression	25.0000
Winter CMC=	**13.28**	Summer CMC=	**6.10**

CMC - Continuous Maximum Criterion Allowable instream NH3 concentration [mg/l]

$$CMC = \frac{(\text{Critical Low Flow [MGD]} * \text{Background Ammonia [mg/L]}) + (\text{Design Flow [MGD]} * \textbf{Effluent Concentration [mg/L]})}{(\text{Critical Low Flow [MGD]} + \text{Design Flow [MGD]})}$$

where:	0.0	Critical Low Flow [MGD] (7Q10 value)
	0.1	Background Ammonia Concentration [mg/L]
	0.01	WWTP Design Flow or long-term average flow [MGD]

Therefore, the Allowable **Daily Maximum Effluent Concentrations** and corresponding **Amounts** in winter and summer are:

Winter		Summer	
13.3	Concentration [mg/L]	**6.1**	Concentration [mg/L]
1.1	Amount [lb/day]	**0.5**	Amount [lb/day]

The calculated acute and chronic toxicity values above are compared to ammonia limits previously imposed to prevent ammonia toxicity or calculated to protect ambient dissolved oxygen levels. The permit imposes the most stringent values in the analysis. The analysis compares the calculated chronic ammonia value (CCC) with a monthly average limit previously imposed to protect dissolved oxygen or to prevent toxicity. The analysis compares the calculated acute ammonia value (CMC) with the previously imposed daily maximum value to protect dissolved oxygen or to prevent toxicity. Generally, water quality models have predicted the monthly average ammonia limit to protect dissolved oxygen. The Division has historically developed a companion daily maximum value to protect dissolved oxygen by multiplying the monthly average limit by two. Empirical data supports

the factor of two developed in consideration of the natural variation in biological pollutant removal and the design basis for treatment unit sizing.

In order to allow the Anderson County Water Authority to meet the proposed limit above, the following compliance schedule is imposed:

The permit limits of 1.0 mg/l (summer- monthly average), 1.5 mg/l (summer- daily maximum) and 1.9 mg/l (winter- monthly average) for Nitrogen, Ammonia total (as N) will become effective on January 1, 2025.

By December 31, 2023, the permittee shall submit a report to Water.Permits@tn.gov detailing the following:

- Activities necessary to achieve compliance with the ammonia limits.
- Completion or projected completion dates of each activity.

5.5. CHLORINATION

Chlorination is used to disinfect the wastewater in order to protect the receiving stream from pathogens. The total residual chlorine (TRC) limit is derived using the mass balance formula and the EPA acute instream protection value of 0.019 mg/L for fish and aquatic life. Applying this formula yields the following calculation for the TRC daily maximum limit:

$$\frac{0.019\ (Qd + Qs)}{Qd} = Limit\ (mg/L) = \frac{0.019(0.045 + 0)}{0.045} = 0.019\,mg/L \approx 0.02\,mg/L$$

Where:

0.019 mg/L	=	acute instream protection value
0	=	Qs – 7Q10 flow of receiving stream (MGD)
0.045	=	Qd – design flow of STP (MGD)

The effluent is disinfected via ultraviolet radiation. A daily maximum limit of 0.02 mg/l for residual chlorine will be applied only if chlorine is used for disinfection.

5.6. TOTAL NITROGEN AND TOTAL PHOSPHORUS

Nutrients are naturally occurring and essential components of healthy aquatic systems. Excessive amounts of nutrients, however, can impact water quality. The enrichment of a waterbody with nutrients, called eutrophication, can result in dense, rapidly multiplying growths, or blooms, of algal species and other nuisance aquatic plants. These have potential for negatively impacting the habitat for fish and aquatic life and degrading the water quality for drinking water supply and

recreation uses. These impacts can present both locally from an individual activity and much further downstream from the cumulative impact of multiple activities. The Division has therefore developed and begun to implement a strategy to accomplish long-term nutrient reduction in Tennessee waters. The strategy, referred to as the Tennessee Nutrient Reduction Framework (NRF), contains proposed rationale and the methodology for implementing the strategy within a watershed area. Consequently, the Framework considers impacts from both point and non-point sources of nutrients and recommends possible reduction goals for both point and non-point sources. The NRF approach to nutrient reduction is intended to utilize an adaptive management approach in consideration of the facts presenting within a watershed and reevaluation of the effectiveness of progress being made. Regular reassessments of goals and action plans will be conducted by reviewing monitoring data, modeling results and other measures of success. As additional data becomes available (such as WWTP effluent characterization and instream water quality data), model results can be re-evaluated.

For small domestic systems who may apply using Form 2E (facilities which do not discharge process wastewater), the Division will generally make a conservative estimate and not require effluent monitoring and reporting. This is especially true for discharges whose users would reasonably be accounted for in watershed loading another way (*e.g.* municipal discharges or the septic systems inherent in nonpoint source loads from urban and agricultural lands). However, effluent characterization may be requested pursuant to T.C.A. § 69-3-107(10) by the Division during the permit term or included in a permit action with site-specific rationale for its inclusion.

5.7. *E. COLI*

Disinfection of wastewater is required to protect the receiving stream from pathogenic microorganisms. *E. coli* is used as an indicator organism as a measure of the bacteriological health of a receiving stream and the effectiveness of disinfection. Both the geometric mean and daily maximum are limited for *E. coli* in accordance with Rule 0400-40-03-.03. The *E. coli* daily maximum limit of 487 colony forming units per 100 mL applies to lakes and exceptional Tennessee waters. A maximum daily limit of 941 colony forming units per 100 mL applies to

all other recreational waters. The units for *E. coli* have been standardized to #/100 mL, which is functionally equivalent to colony forming units.

5.8. UPSET AND BYPASS REPORTING

State regulations at 0400-40-05-.07(2) establish "standard conditions". These standard conditions include 0400-40-05-.07(2)(l) and (m) pertaining to bypass and 0400-40-05-.07(2)(p) pertaining to upset.

6. OTHER PERMIT REQUIREMENTS AND CONDITIONS

6.1. CERTIFIED WASTEWATER TREATMENT OPERATOR

The waste treatment facilities shall be operated under the supervision of a Biological Natural System certified wastewater treatment operator in accordance with the Water Environmental Health Act of 1984. Operator grades are under jurisdiction of the Water and Wastewater Operators Certification Board. This NPDES permit is under jurisdiction of the Tennessee Board of Water Quality, Oil and Gas. Operator grades are rated and recommended by the Division of Water Resources pursuant to Rule 0400-49-01 and are included in this fact sheet for reference. The grades are intentionally not specified in the permit so that the operation certification board can authorize changes in grade without conflicting with this permit.

6.2. PERMIT TERM

In order to meet the target reissuance date for the Clinch-Lower watershed and following the directives for the Watershed Management Program initiated in January 1996, the permit will be issued to expire in 2028.

7. ANTIDEGRADATION STATEMENT / WATER QUALITY STATUS

Tennessee's Antidegradation Statement is found in the Rules of the Tennessee Department of Environment and Conservation, Chapter 0400-40-03-.06. It is the purpose of Tennessee's standards to fully protect existing uses of all surface waters as established under the Act.

Stream determinations for this permit action are associated with the waterbody segment identified by the Division as segment ID# TN06010207029_0100. The Division has not made a water quality assessment of the receiving waters associated with the subject discharge.

8. COMPLIANCE SCHEDULE SUMMARY

Permit Section	Description
1.3	MOR Reports, monthly
1.3	Sign up for NetDMR during permit cycle
1.5	Report to Water.Permits@tn.gov detailing the following: (1) Activities necessary to achieve compliance with the ammonia limit and (2) completion or projected completion dates of each activity by December 31, 2023.
3.2	Sludge management practices, monthly
3.3	Placement of sign(s) within 60 days of permit effective date