Tennessee Valley Authority, Sequoyah Nuclear Plant, P.O. Box 2000, Soddy Daisy, Tennessee 37384

August 18, 2020

10 CFR 50.4

ATTN: Document Control Desk
U.S. Nuclear Regulatory Commission
Washington, D.C. 20555-0001

Sequoyah Nuclear Plant, Units 1 and 2
Renewed Facility Operating License Nos. DPR-77 and DPR-79
NRC Docket Nos. 50-327 and 50-328

Subject: **National Pollutant Discharge Elimination System (NPDES) Permit No. TN0026450 Reissuance and No. TNR050015 Notice of Coverage**

In accordance with Sequoyah Nuclear Plant (SQN) Operating License Appendix B, SQN Environmental Technical Specification Section 5.5.2, "Changes in Permits and Certifications," this letter provides copies of the Tennessee Department of Environment and Conservation (TDEC) permit changes related to the Clean Water Act. Enclosure 1 contains a TDEC reissuance of SQN NPDES Permit No. TN0026450. TDEC has also issued Tennessee Multi-Sector Permit (TMSP) Notice of Coverage for NPDES No. TNR050015 in Enclosure 2. This Notice of Coverage provides coverage while continuing to review the United States Environmental Protection Agency's changes of the federal Multi-Sector General Permit (MSGP). Review of the MSGP for informed decision making to the TMSP is not expected before November 2020.

There are no regulatory commitments associated with this submittal. If you have any questions concerning this matter please contact Mr. Andrew McNeil, Site Licensing Manager (Acting), at (423) 843-8098.

Respectfully,

Matthew Rasmussen
Site Vice President
Sequoyah Nuclear Plant

Enclosures:
1. National Pollutant Discharge Elimination System (NPDES) Permit No. TN0026450
2. NPDES Permit No. TNR050015 - Notice of Coverage

cc (Enclosure):
NRC Regional Administrator – Region II
NRC Senior Resident Inspector – Sequoyah Nuclear Plant

ENCLOSURE 1

TENNESSEE VALLEY AUTHORITY
SEQUOYAH NUCLEAR PLANT (SQN)

National Pollutant Discharge Elimination System (NPDES) Permit No. TN0026450

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

July 30, 2020

Mr. Paul J. Pearman, P.E.
Senior Manager, Water Permitting, Compliance and Monitoring
e-copy: pjpearman@tva.gov
Tennessee Valley Authority (TVA)
1101 Market St., BR 4A
Chattanooga, TN 37402

Subject: **NPDES Permit No. TN0026450**
Tennessee Valley Authority (TVA)
Soddy Daisy, Hamilton County, Tennessee

Dear Mr. Pearman:

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.

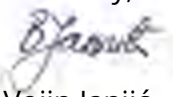
Additionally, for those permits for which the department gives public notice of a draft permit, any permit applicant or aggrieved person may base a permit appeal on any material change to conditions in the final permit from those in the draft, unless the material change has been subject to additional 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 Chattanooga Environmental Field Office at 1-888-891-TDEC; or, at this office, please contact Ms. Sarah Terpstra at (615) 532-3634 or by E-mail at *Sarah.Terpstra@tn.gov*.

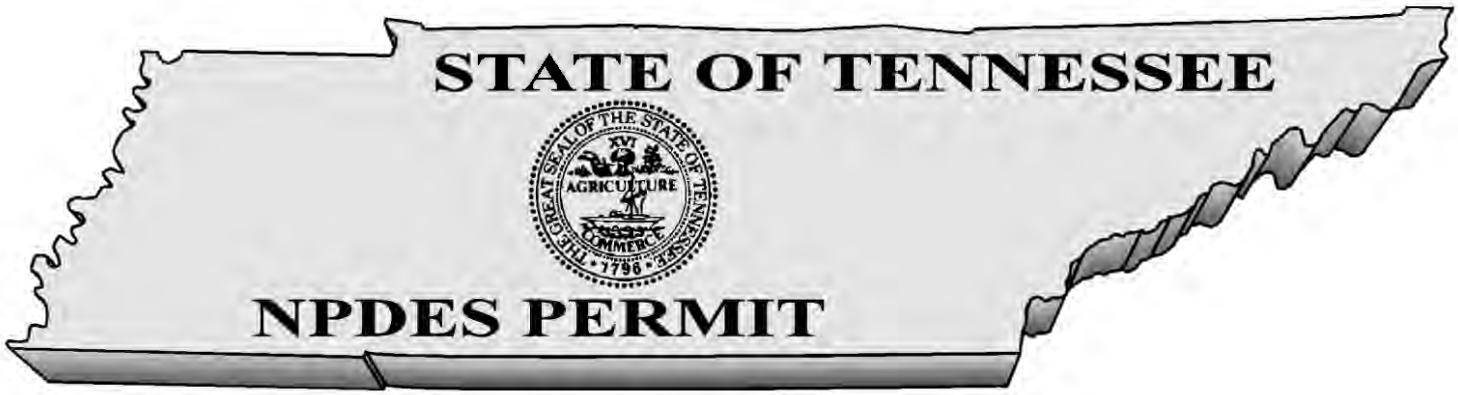
Sincerely,



Vojin Janjić
Manager, Water-Based Systems

Enclosure

cc: Permit Section File
Chattanooga Environmental Field Office
Mr. Travis R Markum, Water Permits & Compliance Specialist II, TVA Environment and Technology, trmarkum@tva.gov
Ms. Millicent M. Garland, Environmental Scientist (Compliance), TVA, mrmoore@tva.gov
Ms. Karrie-Jo Shell, Environmental Engineer, EPA, shell.karrie-jo@epa.gov



No. TN0026450

Authorization to discharge under the
National Pollutant Discharge Elimination System (NPDES)

Issued By

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

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:	**Tennessee Valley Authority (TVA) - Sequoyah Nuclear Plant**
is authorized to discharge:	**process and non-process wastewater through Outfalls 101, 110, 116, 117, and 118, and Internal Monitoring Points 103, and 107; operation of Cooling Water Intake Structure**
from a facility located at:	**Sequoyah Access Road, Soddy Daisy, Hamilton County, TN**
to receiving waters named:	**Tennessee River at miles 483.65 (Outfall 101 & 101 E), 485.2 (Outfall 116), and 484.85 (Outfall 117).**

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

This permit shall become effective on: **August 1, 2020**

This permit shall expire on: **July 31, 2025**

Issuance date: **July 30, 2020**

for Jennifer Dodd
Director

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PART I

A. EFFLUENT LIMITATIONS AND MONITORING REQUIREMENTS

Tennessee Valley Authority (TVA) is authorized to operate a Cooling Water Intake Structure and to discharge process wastewater, non-process wastewater, and stormwater runoff through Outfalls 101 (& 101E), 116, and 117 ot the Tennessee River, and via Internal Outfalls 110 and 118 to the Intake Forebay, and via Internal Monitoring Points 103 and 107. The discharge shall be limited and monitored by the permittee as specified below.

The Division of Water Resources (division) has determined that the cooling water intake structure used by TVA at the Sequoyah Nuclear Plant represents the best technology available (BTA) to minimize adverse environmental impact associated with entrainment in accordance with Section 316(b) of the federal Clean Water Act (33 U.S.C section 1326). Cooling water intake structures at the facility must still comply with impingement mortality standards in accordance with 316(b).

1. Outfall 101 (& 101E – Emergency Spillway) – Diffuser Pond

TVA is authorized to discharge process and non-process wastewater at the Sequoyah Nuclear Plant (SQN) including condenser circulating water essential raw cooling water, cooling tower blowdown, raw cooling water, low volume wastes, miscellaneous low volume wastes, facilities drains & sumps, air conditioning condensate, steam generator blowdown, high pressure fire protection water, regeneration wastes from condensate demineralizer, and stormwater runoff through Outfall 101 to the Tennessee River at mile 483.65. Outfall 101E is an emergency spillway and is subject to the same limitations as Outfall 101. These discharges shall be limited and monitored by the permittee as specified below:

Outfall 101 – All Year *							
Code	**Parameter**	**Qualifier**	**Value**	**Unit**	**Sample Type**	**Frequency**	**Statistical Base**
00010	Temperature, water ° C	Report	-	° C	Recorder	Continuous	Daily Maximum
39516	Polychlorinated biphenyls (PCBs)	<=	0	ppm	Grab	Once Every Permit Cycle	Daily Maximum
50050	Flow	Report	-	MGD	Calculated	Daily	Monthly Average
50050	Flow	Report	-	MGD	Recorder	Continuous	Daily Maximum
50060	Chlorine, total residual (TRC)	<=	0.047	mg/L	Grab	Weekly	Daily Maximum
50060	Chlorine, total residual (TRC)	<=	0.027	mg/L	Grab	Weekly	Monthly Average
TRP3B	IC25 Static Renewal 7 Day Chronic Ceriodaphnia	>	69	%	Composite	Monthly**	Minimum
TRP6C	IC25 Static Renewal 7 Day Chronic Pimephales promelas	>	69	%	Composite	Monthly**	Minimum

Outfall 101 – Summer *							
Code	**Parameter**	**Qualifier**	**Value**	**Unit**	**Sample Type**	**Frequency**	**Statistical Base**
00016	Temp. diff., effluent & upstream ° C	<=	3.0	° C	Calculated	Continuous	Daily Maximum
Outfall 101 – Winter *							
Code	**Parameter**	**Qualifier**	**Value**	**Unit**	**Sample Type**	**Frequency**	**Statistical Base**
00016	Temp. diff., effluent & upstream ° C	<=	5.0	° C	Calculated	Continuous	Daily Maximum
Instream Monitoring – All Year *							
Code	**Parameter**	**Qualifier**	**Value**	**Unit**	**Sample Type**	**Frequency**	**Statistical Base**
00010	Temperature, water ° C	<=	30.5	° C	Calculated	Continuous	Daily Maximum
82234	Temperature rate of change ° C/hr	<=	2.0	° C/hr	Calculated	Continuous	Daily Maximum

*Note: samples shall be taken as follows:

Effluent flow shall be sampled at the diffuser gate prior to entry to the Tennessee River.

Ambient temperature shall be taken from station 14 located on the Tennessee River approximately 7 miles upstream from SQN. Downstream river temperature, temperature rise, and rate of temperature change shall be determined by numerical model.

Total residual chlorine (TRC) analysis shall be performed within 15 minutes of sample collection.

The use of polymers/coagulants is authorized when utilized in a way that does not cause/contribute to toxicity in the discharge.

** Biomonitoring (WET) testing frequency and reporting will be governed by the Biocide/Corrosion Treatment Plan (B/CTP). In order to effectively track WET testing, monthly reporting shall continue. For monitoring periods when WET testing is not required, the permittee shall report “monitoring not required” or NODI code 9 in NetDMR. See Part III section E of this permit for more information regarding monitoring frequency for WET testing.

The following requirements apply to discharges from Outfall 101:

a) Compliance with the river limitations (river temperature, temperature rise, and rate of temperature change) shall be monitored by means of a numerical model that solves the thermohydrodynamic equations governing the flow and thermal conditions in the reservoir. This numerical model will utilize measured values of the upstream temperature profile and river state; flow, temperature, and performance characteristics of the diffuser discharge; and river flow as determined from releases at the Watts Bar and Chickamauga Dams. In the event the modeling system described here is out of service, an alternate method will be employed to measure water temperatures at least one time per day and verify compliance with the maximum river temperature and maximum temperature rise limits.

b) Depth average measurements may be taken at a backup temperature monitor at the downstream end of the diffuser mixing zone (left bank Tennessee River mile 483.4, Station 8) or by grab sampling from boats. Boat sampling will include average 5-foot depth measurements (average of 3, 5, and 7-foot depths). Sampling from a boat shall be made

at Station 14, approximately 7 miles upstream from the plant on the Tennessee River (for ambient temperature) and at quarter points and mid-channel at Tennessee River mile 483.4 (for downstream temperature). The downstream reported value will be a depth (3, 5, and 7-foot) and lateral (quarter points and midpoint) average of the instream measurements. Monitoring in the alternative mode using boat sampling shall not be required when unsafe boating conditions occur.

c) Compliance with river temperature, temperature rise, and rate of temperature change limitations shall be applicable at the edge of a mixing zone which shall not exceed the following dimensions: (1) a maximum length of 1500 feet downstream from the diffusers, (2) a maximum width of 750 feet, and (3) a maximum length of 275 feet upstream from the diffusers. The depth of the mixing zone measured from the surface varies linearly from the surface 275 feet upstream from the diffusers to the top of the diffuser pipes and extends to the bottom downstream from the diffusers. When the plant is operated in closed mode, the mixing zone shall also include the area of the intake forebay.

d) Information required by the numerical model and evaluations for the river temperature, temperature rise, and rate of temperature change shall be made every 15 minutes. The ambient temperature shall be determined at the 5-foot depth as the average of measurements at depths of 3 feet, 5 feet, and 7 feet. The river temperature at the downstream end of the mixing zone shall be determined as that computed by the numerical model at a depth of 5 feet.

e) Daily maximum temperatures for the ambient temperature, the river temperature at the downstream edge of the mixing zone, and temperature rise shall be determined from 24-hour values. The 24-hour average values shall be calculated every 15 minutes, using the current and previous ninety-six 15-minute values, thus creating a “rolling” average. The maximum of the 96 observations generated per day by this procedure shall be reported as the daily maximum value. For the river temperature downstream end of the mixing zone, the 1-hour average shall also be determined. The 1-hour average values shall be calculated every 15 minutes using the average of the current and previous four 15-minute values, creating a rolling average.

f) The daily maximum 24-hour average river temperature is limited to 30.5°C. Since the state’s criteria make exceptions for exceeding the value as a result of natural conditions, where the 24-hour average ambient temperature exceeds 29.4°C and the plant is operating in helper mode[1], the maximum temperature may exceed 30.5°C. In no case shall the plant discharge cause the 1-hour average river temperature at the downstream edge of the mixing zone to exceed 33.9°C without the consent of the permitting authority.

g) The temperature rise is the difference between the 24-hour average ambient river temperature and the 24-hour average temperature at the downstream edge of the mixing zone. The 24-hour average temperature rise shall be limited to 3.0°C during the summer months of April through October. The 24-hour average temperature rise shall be limited to 5.0° during the winter months of November through March.

[1] Helper mode is defined as the treatment of at least part of the plant effluent by the cooling towers.

h) The rate of temperature change shall be computed at 15-minute intervals based on the current 24-hour average ambient river temperature, current 24-hour average river flow, and current 15-minute values of flow and temperature of water discharging through the diffuser pipes. The 1-hour average rate of temperature change shall be calculated every 15 minutes by averaging the current and previous four 15-minute values. The 1-hour average rate of temperature change shall be limited to 2°C per hour.

i) During periods when the Essential Raw Cooling Water (ERCW) and/or Raw Cooling Water (RCW) systems are receiving applications of biocides (oxidizing or non-oxidizing), chemical dispersants, or detoxicant chemical additives, the permittee shall implement the Biocide/Corrosion Treatment Plan (B/CTP), which was approved April 27, 2005, and all subsequent revisions as approved by the division. The B/CTP for these activities describes the specific chemical additive, material feed rate, method detection level (MDL) for the active compounds, and the allowable concentration and/or mass limits, and actions proposed to ensure compliance with established effluent limitations during application. The B/CTP refers to the NPDES permit for specific language associated with monitoring total residual chlorine (TRC). Note: the term TRC will encompass all references to any oxidants (i.e. chlorine/bromine) in use at the SQN facility; therefore, the acronym TRO (total residual oxidants) may be used interchangeably.

j) Any substance, including radioactive materials, is of interest to our agency if it has reasonable potential to exceed applicable water quality criteria. However, radioactive releases to the environment, notwithstanding point source discharges authorized via this permit, are not regulated under the Clean Water Act, but are instead regulated under the Nuclear Regulatory Commission (NRC) by issuance of an Operating License. Pertinent regulations are found in 10 CFR Part 20 and 10 CFR Part 50. Facility effluents that may contain radioactive material are not addressed as part of the NPDES permitting process.

2. Internal Monitoring Point 103 – Low Volume Waste Treatment Pond

TVA – Sequoyah Nuclear Plant is authorized to discharge wastewater from the Low Volume Waste Treatment Pond (LVP) through Internal Monitoring Point (IMP) 103 to the Diffuser Pond, which finally discharges through Outfall 101. Wastewater consists of various flows including metal cleaning waste, condensate demineralizer, turbine building sump waste, steam generator blowdown, neutral waste sump, and stormwater. This discharge shall be limited and monitored by the permittee as specified below:

Internal Monitoring Point 103*							
Code	**Parameter**	**Qualifier**	**Value**	**Unit**	**Sample Type**	**Frequency**	**Statistical Base**
00400	pH	>=	6.0	SU	Grab	Monthly	Minimum
00400	pH	<=	9.0	SU	Grab	Monthly	Maximum
00530	Total Suspended Solids (TSS)	<=	100	mg/L	Grab	Monthly	Daily Maximum
00530	Total Suspended Solids (TSS)	<=	30	mg/L	Grab	Monthly	Monthly Average
00556	Oil & Grease	<=	20	mg/L	Grab	Monthly	Daily Maximum
00556	Oil & Grease	<=	15	mg/L	Grab	Monthly	Monthly Average

50050	Flow	Report	-	MGD	Instantaneous	Monthly	Daily Maximum
50050	Flow	Report	-	MGD	Instantaneous	Monthly	Monthly Average

* Note: samples for IMP 103 shall be taken of the Low Volume Waste Treatment Pond discharge prior to mixing with other waste streams. In the event that the turbine building sump is discharged directly to the CCW channel or the yard drainage pond, TSS, Oil and Grease, and pH shall be monitored 1/week.

3. Internal Monitoring Point 107 – Metal Cleaning Waste Ponds

TVA – Sequoyah Nuclear Plant is authorized to discharge stormwater from the Metal Cleaning Waste Treatment Ponds to the Low Volume Waste Treatment Pond through IMP 107. Influent lines to the Metal Cleaning Waste Ponds are disconnected and capped and only decanted accumulated stormwater is discharged via IMP 107. Wastewater ultimately discharges to the Diffuser Pond, which then discharges to the Tennessee River via Outfall 101. The permittee is not required to monitor discharge through IMP 107 for routine decanting of stormwater. During routine decanting of stormwater, the permittee shall report "monitoring not required" or NODI code 9 on discharge monitoring reports.

However, during dewatering events and for the duration of the dewatering event, the permittee shall monitor discharge daily from the metal cleaning waste treatment ponds as specified below:

Internal Monitoring Point 107							
Code	**Parameter**	**Qualifier**	**Value**	**Unit**	**Sample Type**	**Frequency**	**Statistical Base**
00400	pH	>=	6.0	SU	Grab	Daily	Minimum
00400	pH	<=	9.0	SU	Grab	Daily	Maximum
00530	Total Suspended Solids (TSS)	<=	100	mg/L	Composite	Daily	Daily Maximum
00530	Total Suspended Solids (TSS)	<=	30	mg/L	Composite	Daily	Monthly Average
00556	Oil & Grease	<=	20	mg/L	Grab	Daily	Daily Maximum
00556	Oil & Grease	<=	15	mg/L	Grab	Daily	Monthly Average
01042	Copper, total (as Cu)	<=	1.0	mg/L	Composite	Daily	Daily Maximum
01042	Copper, total (as Cu)	<=	1.0	mg/L	Composite	Daily	Monthly Average
01045	Iron, total (as Fe)	<=	1.0	mg/L	Composite	Daily	Daily Maximum
01045	Iron, total (as Fe)	<=	1.0	mg/L	Composite	Daily	Monthly Average

4. (Internal) Outfall 110 – Closed Mode Only

Outfall 110 has been inactive for approximately 20 years but remains in this permit in the event the plant goes into closed mode. The permittee is authorized to discharge backwash wastewater and recycle cooling water through Outfall 110 to the cooling channel and intake forebay. Outfall 110 is not normally used in day-to-day operations of the plant and effluent limitations and monitoring requirements are applicable only during periods of closed-mode operation. However, should conditions occur that require its use as the main discharge location in place of Outfall 101, the same monitoring requirements as Outfall 101 shall apply to Outfall 110.

5. Outfall 116 & Outfall 117

TVA – Sequoyah Nuclear Plant is authorized to discharge backwash wastewater through Outfall 116 to the Tennessee River at mile 485.2 and through Outfall 117 to the Tennessee River at mile 484.9. **These discharges are backwash only and therefore there are no limits or monitoring requirements for these discharges**.

6. (Internal) Outfall 118 - Inactive

TVA – Sequoyah Nuclear Plant is authorized to discharge dredge pond settling water and stormwater runoff through Outfall 118 to the intake forebay on the Tennessee River at mile 484.8. The pond is currently not in service and the Outfall is inactive; only stormwater from the surrounding vegetated area is discharged. The following monitoring requirements apply only when the pond is in service, as specified below:

Internal Outfall 118							
Code	**Parameter**	**Qualifier**	**Value**	**Unit**	**Sample Type**	**Frequency**	**Statistical Base**
00300	Oxygen, dissolved (DO)	>=	2.0	mg/L	Grab	Two Per Week	Minimum
00530	Total Suspended Solids (TSS)	<=	100	mg/L	Grab	Two Per Week	Daily Maximum
00545	Settleable Solids	<=	1.0	mL/L	Grab	Monthly	Daily Maximum
50050	Flow	Report	-	MGD	Estimate	Once Per Batch	Daily Maximum
50050	Flow	Report	-	MGD	Estimate	Once Per Batch	Monthly Average

Samples taken in compliance with the monitoring requirements specified above shall be of a discharge from the settling pond prior to mixing with the intake forebay.

Grab samples shall be taken at these frequencies, including a grab sample taken immediately prior to termination of the batch discharge.

These effluent limitations and monitoring requirements only apply at times when this settling pond is in use as a settling basin for dredged sediment. Best Management Practices (BMP) shall be utilized to control runoff from the pond. Examples include vegetative cover, silt fences, and/or hay bales.

7. Narrative Requirements

Narrative Requirements	Due Date
Within 90 days of the permit effective date, the permittee shall submit an updated Biocide/Corrosion Treatment Plan (B/CTP) reflecting the new TRC limits included in the permit and any other necessary changes.	October 30, 2020
The permittee shall submit an annual Biocide/Corrosion Treatment Plan (B/CTP) report by January 31st of each year for the previous calendar year.	January 31 (annually)
Within 180 days of the permit effective date, the permittee shall submit a report with updated information under §122.21(r)(6) outlining the permittee's chosen method of compliance with impingement mortality standards. This report shall also include through-screen velocity design flow documentation as required by §125.94(c)(2), where applicable, and will include a compliance schedule for implementing the chosen method of compliance with the impingement mortality standards and completion of the technology performance optimization study and impingement mortality reduction.	January 28, 2021
At least once per permit cycle, the permittee shall perform a study to confirm the calibration of the numerical model used to determine compliance with the temperature requirements for Outfall 101. A report of this study shall be submitted to the division prior to the permit expiration date.	July 31, 2025

All reports and narrative requirements shall be submitted electronically to the following email addresses: Water.Permits@tn.gov and DWRWater.Compliance@tn.gov.

8. Additional requirements and conditions applicable to all Outfalls:

- Flow shall be reported in Million Gallons per Day (MGD);
- No discharge of polychlorinated biphenyl compounds (PCB) is allowed under this permit at any outfall;
- There shall be no distinctly visible floating scum, solids, oil sheen, visible foam, and other floating matter discharged with the wastewater to the receiving stream. The wastewater discharge must not cause an objectionable color contrast in the receiving stream;
- The wastewater discharge shall not 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 which prevents its entrance into or pollution of any surface or subsurface waters. Additionally, the disposal of such sludge or other material must be in compliance with the Tennessee Solid Waste Disposal Act, TCA 68-31-101 et seq. and the Tennessee Hazardous Waste Management Act, TCA 68-46-101 et seq.;
- Unless elsewhere specified, summer months are May through October and winter months are November through April;

- Nothing in this permit authorizes take for the purposes of a facility's compliance with the Endangered Species Act (40 C.F.R. 125.98(b)(1)); and

- Priority pollutants will not be discharged in cooling tower blowdown in amounts that are detectable by analytical methods in 40 CFR Part 136. Monitoring for the priority pollutants, including chromium and zinc, will not be required unless making an application for a new NPDES permit.

B. MONITORING PROCEDURES

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 after treatment and prior to mixing with uncontaminated storm water 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, calibrated 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 less than plus or minus 10% from the true discharge rates throughout the range of expected discharge volumes.

2. Sampling Frequency

The permittee should mark the 'No Discharge' box on the Discharge Monitoring Report form 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.

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 according to methods prescribed in Title 40, CFR Part 136, as amended, promulgated pursuant to Section 304 (h) of the Act.

c. The acceptable methods for analysis of TRC are any methods specified in Title 40, CFR Part 136. The method detection level (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 higher MDL, and shall have that documentation available for review upon request. In cases where the permit limit is less than the MDL, the reporting of TRC at less than the MDL shall be interpreted to constitute compliance with the permit limit.

In instances where permit limits established through implementation of applicable water criteria are below analytical capabilities, compliance with those limits will be determined using the detection limits described in the TN Rules, Chapter 0400-40-03-.05(8).

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 exact place, date and time of sampling or measurements;

b. The exact person(s) collecting samples or measurements;

c. The dates and times the analyses were performed;

d. The person(s) or laboratory who performed the analyses;

e. The analytical techniques or methods used, and;

f. The results of all required analyses.

5. Records Retention

All records and information resulting from the monitoring activities required by this permit including all records of analyses performed and calibration and maintenance of instrumentation shall be retained for a minimum of three (3) years, or longer, if requested by the Division of Water Resources.

C. DEFINITIONS

For the purposes of this permit, ***annually*** is defined as a monitoring frequency of once every twelve (12) months beginning with the date of issuance 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.

For the purpose of this permit, a ***calendar day*** is defined as any 24-hour period.

For the purposes of this permit, a ***composite sample*** for non-storm water discharges is a sample composed of equal aliquots collected at the rate of at least once per hour at regular time intervals over the period of discharge in a 24-hour period and combined into a single sample. A composite sample may also be a sample collected continuously over a period of 24-hours at a rate proportional to the flow. (This definition applies except for sampling associated with Biomonitoring in which the permittee must use procedures for sampling from EPA-821-R-02-013 or most current edition.)

Continuous monitoring, for the purposes of this permit, is the measurement of temperature at a frequency that will accurately characterize the nature of discharges from the site and water in the receiving stream. Samples collected continuously shall be at a frequency of not less than once every fifteen minutes for temperature.

Cooling water means water used for contact or non-contact cooling, including water used for equipment cooling, evaporative cooling tower makeup, and dilution of effluent heat content. The intended use of the cooling water is to absorb waste heat rejected from the process or processes used, or from auxiliary operations on the facility's premises.

Cooling water intake structure means the total physical structure and any associated constructed waterways used to withdraw cooling water from waters of the United States. The cooling water intake structure extends from the point at which water is first withdrawn from waters of the United States up to, and including, the intake pumps***.***

Actual intake flow (AIF) means the average volume of water withdrawn on an annual basis by the cooling water intake structures over the past three years.

Design intake flow (DIF) means the value assigned during the cooling water intake structure design to the maximum instantaneous rate of flow of water the cooling water intake system is capable of withdrawing from a source waterbody.

Entrainment means the incorporation of all life stages of fish and shellfish with intake water flow entering and passing through a cooling water intake structure and into a cooling water system.

Impingement means the entrapment of all life stages of fish and shellfish on the outer part of an intake structure or against a screening device during periods of intake water withdrawal.

The ***daily maximum amount*** is a limitation measured in pounds per day (lb/day), on the total amount of any pollutant in the discharge by weight during any calendar day.

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

The ***daily maximum temperature***, for the purposes of this permit, is the largest of the ninety-six 15-minute (instantaneous) readings for the day.

"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***" - 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 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.

Dry weather flow shall be construed to represent discharges consisting of process and/or non-process wastewater only.

A ***grab sample***, for the purposes of this permit, is defined as a single effluent sample of at least 100 milliliters (sample volumes <100 milliliters are allowed when specified per standard methods, latest edition) collected at a randomly selected time over a period not exceeding 15 minutes. The sample(s) shall be collected at the period(s) most representative of the total discharge.

The ***instantaneous concentration*** is a limitation on the concentration, in milligrams per liter (mg/L), of any pollutant contained in the discharge determined from a grab sample taken at any point in time.

The ***monthly average amount*** shall be determined by the summation of all the measured daily discharges by weight divided by the number of days during the calendar month when the measurements were made.

The ***monthly average concentration***, other than for *E. coli* bacteria, is the arithmetic mean of all the composite or grab samples collected in a one-calendar month period.

Pollutant means sewage, industrial wastes, or other wastes.

For the purpose of this permit, 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, or October 1 through December 31.

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.

For the purposes of this permit, a ***recorder*** is a device that makes a graph or other automatic record of the stage, pressure, depth, velocity, or the movement or position of water controlling devices, usually as a function of time.

For the purposes of this permit, a ***totalizer*** is a device or meter that continuously measures and calculates (adds) total flows in gallons, million gallons, cubic feet, or some other unit of volume measurement.

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.

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.

For the purposes of this permit, ***weekly*** is defined as any recurring seven day period. For reporting purposes, a week that contains a change of month shall be considered part of the latter month.

Wet weather flow shall be construed to represent storm water runoff which, in combination with all process and/or non-process wastewater discharges, as applicable, is discharged during a qualifying storm event.

D. 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 level
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
CFS – cubic feet per second
CFU – colony forming units
CIU – categorical industrial user
CSO – combined sewer overflow
DMR – discharge monitoring report
D.O. – dissolved oxygen
EFO – environmental field office
LB(lb) - pound

IC_{25} – inhibition concentration causing 25% reduction in survival, reproduction and growth of the test organisms
IU – industrial user
IWS – industrial waste survey
LC_{50} – acute test causing 50% lethality
MDL – method detection level
MGD – million gallons per day
MG/L(mg/L) – milligrams per liter
ML – minimum level of quantification
ml – milliliter
MLSS – mixed liquor suspended solids
MOR – monthly operating report
NODI – no discharge
NPDES – national pollutant discharge elimination system
PL – permit limit
POTW – publicly owned treatment works
RDL – required detection limit
SAR – semi-annual [pretreatment program] report
SIU – significant industrial user
SSO – sanitary sewer overflow
STP – sewage treatment plant
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

E. REPORTING

1. Monitoring Results

Monitoring results shall be recorded monthly and submitted monthly using NetDMR. Submittals shall be no later than 15 days after the completion of the reporting period. If NetDMR is not functioning, a completed DMR with an original signature shall be submitted to the following address:

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

If NetDMR is not functioning, a copy of the completed and signed DMR shall be mailed to the Chattanooga Environmental Field Office (EFO) at the following address:

STATE OF TENNESSEE
DEPARTMENT OF ENVIRONMENT AND CONSERVATION
DIVISION OF WATER RESOURCES
Chattanooga Environmental Field Office
1301 Riverfront Parkway, Suite 206
Chattanooga, Tennessee 37402

A copy should be retained for the permittee's files. In addition, any communication regarding compliance with the conditions of this permit must be sent to the two offices listed above.

The first DMR is due on the 15th of the month following permit effectiveness.

DMRs and any other information or report must be signed and certified by a responsible corporate officer as defined in 40 CFR 122.22, a general partner or proprietor, or 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.

The electronic submission of DMR data will be accepted only if formally approved beforehand by the division. For purposes of determining compliance with this permit, data approved by the division to be submitted electronically is legally equivalent to data submitted on signed and certified DMR forms.

2. Additional Monitoring by Permittee

If the permittee monitors any pollutant more frequently than required at the location(s) designated, using approved analytical methods as specified herein, the results of such monitoring shall be included in the calculation and reporting of the values required in the DMR form. Such increased frequency shall also be indicated on the form.

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 Section 69-3-115 of the Tennessee Water Quality Control Act.

4. Outlier Data

Outlier data include analytical results that are probably false. The validity of results is based on operational knowledge and a properly implemented quality assurance program. False results may include laboratory artifacts, potential sample tampering, broken or suspect sample containers, sample contamination or similar demonstrated quality control flaw.

Outlier data are identified through a properly implemented quality assurance program, and according to ASTM standards (e.g. Grubbs Test, 'h' and 'k' statistics). Furthermore, outliers should be verified, corrected, or removed, based on further inquiries into the matter. If an outlier was verified (through repeated testing and/or analysis), it should remain in the preliminary data

set. If an outlier resulted from a transcription or similar clerical error, it should be corrected and subsequently reported.

Therefore, only if an outlier was associated with problems in the collection or analysis of the samples and as such does not conform with the Guidelines Establishing Test Procedures for the Analysis of Pollutants (40 CFR §136), it can be removed from the data set and not reported on the Discharge Monitoring Report forms (DMRs). Otherwise, all results (including monitoring of pollutants more frequently than required at the location(s) designated, using approved analytical methods as specified in the permit) should be included in the calculation and reporting of the values required in the DMR form. You are encouraged to use “comment” section of the DMR form (or attach additional pages), in order to explain any potential outliers or dubious results.

F. SCHEDULE OF COMPLIANCE

Full compliance and operational levels shall be attained from the effective date of this permit. This includes compliance with deadlines and schedules as specified in the permit.

PART II

A. GENERAL PROVISIONS

1. 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 Director of the Division of Water Resources (the "Director") no later than 180 days prior to the expiration date. Such applications must be properly signed and certified.

2. 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:

a. To enter upon the permittee's premises where an effluent source is located or where records are required to be kept under the terms and conditions of this permit, and at reasonable times to copy these records;

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

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

3. 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 offices of the Division of Water Resources. As required by the Federal Act, effluent data shall not be considered confidential.

4. 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 and/or other technology-based effluent limitations such as those in State of Tennessee Rule 0400-40-05-.09.

5. Treatment Facility Failure

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.

6. 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.

7. 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.

8. Other Information

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

B. CHANGES AFFECTING THE PERMIT

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 in 40 CFR 122.29(b); or

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

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

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.

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

3. Change of Ownership

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 the 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 Director, within 30 days, does not notify the current permittee and the new permittee of his intent to modify, revoke or reissue, or terminate the permit and to require that a new application be filed rather than agreeing to the transfer of the permit.

Pursuant to the requirements of 40 CFR 122.61, concerning transfer of ownership, the permittee must provide the following information to the division in their formal notice of intent to transfer ownership: 1) the NPDES permit number of the subject permit; 2) the effective date of the proposed transfer; 3) the name and address of the transferor; 4) the name and address of the

transferee; 5) the names of the responsible parties for both the transferor and transferee; 6) a statement that the transferee assumes responsibility for the subject NPDES permit; 7) a statement that the transferor relinquishes responsibility for the subject NPDES permit; 8) the signatures of the responsible parties for both the transferor and transferee pursuant to the requirements of 40 CFR 122.22(a), "Signatories to permit applications"; and, 9) 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.

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.

C. NONCOMPLIANCE

1. Effect of Noncompliance

The permittee shall comply with all conditions of this permit. Any permit noncompliance constitutes a violation of applicable State and Federal laws and is grounds for enforcement action, permit termination, permit modification, or denial of permit reissuance.

2. 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 regional Field Office within 24-hours from the time the permittee becomes aware of the circumstances. (The regional Field Office should be contacted for names and phone numbers of environmental response personnel).

A written submission must be provided within five calendar days of the time the permittee becomes aware of the circumstances, unless this requirement is waived by the Director on a case-by-case basis. The permittee shall provide the Director with the following information:

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

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 Discharge Monitoring Report. 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.

3. Overflow

a. "***Overflow***" means the discharge to land or water of wastes from any portion of the collection, transmission, or treatment system other than through permitted outfalls.

b. Overflows are prohibited.

c. The permittee shall operate the collection system so as to avoid sanitary sewer overflows. No new or additional flows shall be added upstream of any point in the collection system, which experiences chronic overflows (greater than 5 overflows per year) or would otherwise overload any portion of the system.

d. Unless there is specific enforcement action to the contrary, the permittee is relieved of this requirement after: 1) an authorized representative of the Commissioner of the Department of Environment and Conservation has approved an engineering report and construction plans and specifications prepared in accordance with accepted engineering practices for correction of the problem; 2) the correction work is underway; and 3) the cumulative, peak-design, flows potentially added from new connections and line extensions upstream of any chronic overflow point are less than or proportional to the amount of inflow and infiltration removal documented upstream of that point. The inflow and infiltration reduction must be measured by the permittee using practices that are customary in the environmental engineering field and reported in an attachment to a Monthly Operating Report submitted to the regional TDEC Field Office. The data measurement period shall be sufficient to account for seasonal rainfall patterns and seasonal groundwater table elevations.

e. In the event that more than five (5) sanitary sewer overflows have occurred from a single point in the collection system for reasons that may not warrant the self-imposed moratorium or completion of the actions identified in this paragraph, the permittee may request a meeting with the Division of Water Resources field office staff to petition for a waiver based on mitigating evidence.

4. Upset

a. "***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.

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."

5. 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.

6. Bypass

a. "***Bypass***" is the intentional diversion of wastewater away 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 the following 3 conditions are met:

i. The bypass is unavoidable to prevent loss of life, personal injury, or severe property damage;

ii. There are not feasible alternatives to bypass, such as the use of auxiliary treatment facilities, retention of untreated wastes, or maintenance during normal periods of equipment down-time. 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 down-time or preventative maintenance;

iii. The permittee submits notice of an unanticipated bypass to the Division of Water Resources in the appropriate environmental assistance center within 24-hours of becoming aware of the bypass (if this information is provided orally, a written submission must be provided within five days). When the need for the bypass is foreseeable, prior notification shall be submitted to the Director, if possible, at least 10 days before the date of the bypass.

c. Bypasses not exceeding limitations are allowed **only** if the bypass is necessary for essential maintenance to assure efficient operation. All other bypasses are prohibited. Allowable bypasses not exceeding limitations are not subject to the reporting requirements of 6.b.iii, above.

D. LIABILITIES

1. Civil and Criminal Liability

Except as provided in permit conditions for "**Bypass,**" "**Overflow,**" and "**Upset,**" 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. 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 III

OTHER REQUIREMENTS

A. TOXIC POLLUTANTS

The permittee shall notify the Division of Water Resources as soon as it knows or has reason to believe:

1. That any activity has occurred or will occur which would result in the discharge on a routine or frequent basis, of any toxic substance(s) (listed at 40 CFR 122, Appendix D, Table II and III) which is not limited in the permit, if that discharge will exceed the highest of the following "notification levels":

    a. One hundred micrograms per liter (100 ug/L);

    b. Two hundred micrograms per liter (200 ug/L) for acrolein and acrylonitrile; five hundred micrograms per liter (500 ug/L) for 2,4-dinitrophenol and for 2-methyl-4,6-dinitrophenol; and one milligram per liter (1 mg/L) for antimony;

    c. Five (5) times the maximum concentration value reported for that pollutant(s) in the permit application in accordance with 122.21(g)(7); or

    d. The level established by the Director in accordance with 122.44(f).

2. That any activity has occurred or will occur which would result in any discharge, on a non-routine or infrequent basis, of a toxic pollutant which is not limited in the permit, if that discharge will exceed the highest of the following "notification levels":

    a. Five hundred micrograms per liter (500 ug/L);

    b. One milligram per liter (1 mg/L) for antimony;

    c. Ten (10) times the maximum concentration value reported for that pollutant in the permit application in accordance with 122.21(g)(7); or

    d. The level established by the Director in accordance with 122.44(f).

B. REOPENER CLAUSE

If an applicable standard or limitation is promulgated under Sections 301(b)(2)(C) and (D), 304(B)(2), and 307(a)(2) and that effluent standard or limitation is more stringent than any effluent

limitation in the permit or controls a pollutant not limited in the permit, the permit shall be promptly modified or revoked and reissued to conform to that effluent standard or limitation.

C. PLACEMENT OF SIGNS

Within sixty (60) days of the effective date of this permit, the permittee shall place and maintain a sign(s) at each outfall and any bypass/overflow point in the collection system. For the purposes of this requirement, any bypass/overflow point that has discharged five (5) or more times in the last year must be so posted. The sign(s) should be clearly visible to the public from the bank and the receiving stream or from the nearest public property/right-of-way, if applicable. 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 is given as an example of the minimal amount of information that must be included on the sign:

TREATED INDUSTRIAL WASTEWATER
Tennessee Valley Authority (TVA)
Sequoyah Nuclear Plant (SQN)
(Permittee's Phone Number)
NPDES Permit NO. TN0026450
TENNESSEE DIVISION OF WATER RESOURCES
1-888-891-8332 ENVIRONMENTAL FIELD OFFICE - Chattanooga

D. ANTIDEGRADATION

Pursuant to the Rules of the Tennessee Department of Environment and Conservation, Chapter 0400-40-03-.06, titled “Tennessee Antidegradation Statement,” which prohibits the degradation of exceptional Tennessee waters and the increased discharges of substances that cause or contribute to impairment, the permittee shall further be required, pursuant to the terms and conditions of this permit, to comply with the effluent limitations and schedules of compliance required to implement applicable water quality standards, to comply with a State Water Quality Plan or other state or federal laws or regulations, or where practicable, to comply with a standard permitting no discharge of pollutants.

E. BIOMONITORING REQUIREMENTS, CHRONIC

The permittee shall conduct a 3-Brood *Ceriodaphnia dubia* Survival and Reproduction Test and a 7-Day Fathead Minnow *(Pimephales promelas)* Larval Survival and Growth Test on the same samples of final effluent from Outfall 101. Sampling shall be representative of the discharges made. The permittee shall try to arrange some samples for the biomonitoring testing to coincide

with the intermittent application of chemicals so that there are toxicity test results that reflect seasonal variations in chemical treatments.

The measured endpoint for toxicity will be the inhibition concentration causing 25% reduction (IC25) in survival, reproduction, or growth of the test organisms. The IC25 shall be determined based on a 25% reduction as compared to the controls. The average reproduction and growth responses will be determined based on the number of *Ceriodaphnia dubia* or *Pimephales promelas* larvae used to initiate the test.

Test shall be conducted and its results reported based on appropriate replicates of a total of five serial dilutions and a control, using the percent effluent dilutions as oultined in the following table:

Serial Dilutions for Whole Effluent Toxicity (WET) Testing					
100% Effluent	**(100+PL)/2**	**Permit Limit (PL)**	**0.50 X PL**	**0.25 X PL**	**Control**
% effluent					
100	**84.5**	**69**	**34.5**	**17.25**	**0**

The dilution/control water used will be a moderately hard water as described in Short-Term Methods for Estimating the Chronic Toxicity of Effluents and Receiving Waters to Freshwater Organisms, EPA-821-R-02-013 (or the most current edition). Results from a chronic standard reference toxicant quality assurance test for each species tested shall be submitted with the discharge monitoring report. Reference toxicant tests shall be conducted as required in EPA-821-R-02-013 (or the most current edition). Additionally, the analysis of this multi-concentration test shall include review of the concentration-response relationship to ensure that calculated test results are interpreted appropriately.

Toxicity will be demonstrated if the IC25 is less than or equal to the permit limit indicated for each outfall in the above table. Toxicity demonstrated by the tests specified herein constitutes a violation of this permit. However, if raw water intake samples (tested concurrently with the effluent samples) are shown to be toxic enough to represent a test failure (100 percent of samples statistically less than controls using t-tests and minnow growth or daphnia reproduction is 25 percent less than controls) and if effluent toxicity is not statistically greater than calculated intake toxicity, the effluent toxicity test in question will be considered invalid. In the event these two above described conditions occur, the toxicity test shall be repeated according to the schedule requirements for test failure. Effluent toxicity that is not consistent with the intake toxicity conditions specified above will serve as a hard trigger for accelerated biomonitoring.

All tests will be conducted using a minimum of three 24-hour flow-proportionate composite samples of final effluent (e.g., collected on days 1, 3 and 5). If, in any control more than 20% of the test organisms die in 7 days, the test (control and effluent) is considered invalid and the test shall be repeated within 30 days of the date the initial test is invalidated. Furthermore, if the results do not meet the acceptability criteria of section 4.9.1, EPA-821-R-02-013 (or the most current edition), or if the required concentration-response review fails to yield a valid relationship per guidance contained in Method Guidance and Recommendations for Whole Effluent Toxicity (WET) Testing, EPA-821-B-00-004 (or the most current edition), that test shall be repeated. Any

test initiated but terminated before completion must also be reported along with a complete explanation for the termination.

The toxicity tests specified herein for Outfall 101 shall be conducted according to the B/CTP and begin during the first chemical application requiring biomonitoring following the effective date of this permit. As outlined in the Biocide/Chemical Treatment Plan (B/CTP), **WET testing shall be performed twice per year at Outfall 101: once per year when oxidizing biocides are being used, and once per year when non-oxidizing biocides are being used.** In months when WET testing is performed, the permittee shall indicate under which conditions WET testing was performed on Discharge Monitoring Reports. In order to effectively track WET monitoring, monthly reporting shall continue. For monitoring periods when WET testing is not required by the B/CTP the permittee shall report "Monitoring not required" (NODI = 9) for that month in NetDMR.

In the event of a test failure, the permittee must start a follow-up test within 2 weeks and submit results from a follow-up test within 30 days from obtaining initial WET testing results. The follow-up test must be conducted using the same serial dilutions as presented in the corresponding table(s) above. The follow-up test will not negate an initial failed test. In addition, the failure of a follow-up test will constitute a separate permit violation which must also be reported.

In the event of 2 consecutive test failures or 3 test failures within a 12-month period for the same outfall, the permittee must initiate a Toxicity Identification Evaluation/Toxicity Reduction Evaluation (TIE/TRE) study within 30 days and so notify the division by letter. This notification shall include a schedule of activities for the initial investigation of that outfall. During the term of the TIE/TRE study, the frequency of biomonitoring shall be once every three months. Additionally, the permittee shall submit progress reports once every three months throughout the term of the TIE/TRE study. The toxicity must be reduced to allowable limits for that outfall within 2 years of initiation of the TIE/TRE study. Subsequent to the results obtained from the TIE/TRE studies, the permittee may request an extension of the TIE/TRE study period if necessary to conduct further analyses. The final determination of any extension period will be made at the discretion of the division.

The TIE/TRE study may be terminated at any time upon the completion and submission of 2 consecutive tests (for the same outfall) demonstrating compliance. Following the completion of TIE/TRE study, the frequency of monitoring will return to a regular schedule, as defined previously in this section as well in Part I of the permit. During the course of the TIE/TRE study, the permittee will continue to conduct toxicity testing of the outfall being investigated at the frequency of once every three months but will not be required to perform follow-up tests for that outfall during the period of TIE/TRE study.

Test procedures, quality assurance practices, determinations of effluent survival/reproduction and survival/growth values, and report formats will be made in accordance with Short-Term Methods for Estimating the Chronic Toxicity of Effluents and Receiving Waters to Freshwater Organisms, EPA-821-R-02-013, or the most current edition. Results of all tests, reference toxicant information, copies of raw data sheets, statistical analysis and chemical analysis shall be complied in a report, which shall also be written in accordance to the above referenced methods.

Two copies of biomonitoring reports (including follow-up reports) shall be submitted to the division. One copy of the report shall be submitted along with the discharge monitoring report (DMR). The second copy shall be submitted to the local Division of Water Resources office address:

Environmental Field Office - Chattanooga
Division of Water Resources
1301 Riverfront Parkway, Suite 206
Chattanooga, TN 37402

F. COMPLIANCE WITH CWA SECTION 316(A) – THERMAL VARIANCE

TDEC will extend the thermal variance in the renewed permit.

Studies as outlined below shall be conducted by the permittee to confirm the performance of the TVA - Sequoyah Nuclear Plant monitoring system and to verify that Section 316(a) of the Clean Water Act is being adequately met. If any changes are made to TVA's study plan, an updated version should be shared with the division. The data from the studies below shall be compiled with past data and reported to the Division of Water Resources with a request for continuation of the thermal variance in the next permit application. **At least one summer sampling event shall be performed during this permit cycle.**

1) The permittee shall analyze previous and new data to determine whether significant changes have occurred in plant operation, reservoir operation, or instream biology that would necessitate the need for changes in the thermal variance.

2) Physical measurements to characterize and map the Sequoyah Nuclear Plant thermal plume concurrent with biological field sampling, which is addressed below:

3) TVA's Reservoir Fish Assemblage Index (RFAI) will be used to assess the overall health of the fish community in Chickamauga Reservoir. **The RFAI assessment includes reservoir benthic macroinvertebrate community monitoring in addition to monitoring the fish community every other year**. Should the fish community or particular populations of the fish community fall significantly below expectations, further investigations will be proposed, and, upon approval by the Division of Water Resources and Environmental Protection Agency (EPA) Region 4, will be initiated to verify apparent declines and assist in the identification of possible sources of impairment.

G. COMPLIANCE WITH CWA SECTION 316(B) – COOLING WATER INTAKE

When a permittee submits an application for permit renewal, the permittee must submit to the Director the information required under 40 CFR §122.21 as outlined below, unless the permittee has requested and the division has granted a waiver to submit reduced application information in accordance with §125.95(c) at least two years six months prior to permit expiration.

(r)(2) – Source water physical data *and* (r)(3) – Cooling water intake structure data, and applicable provisions of the paragraphs below:

(r)(4) – Source water baseline biological characterization data
(r)(5) – Cooling water system data
(r)(6) – Chosen method of compliance with impingement mortality standard
(r)(7) – Entrainment performance studies

(r)(8) – Operational status

Additionally, since the facility actual intake flow is greater than 125 MGD, the permittee must also submit:

(r)(9) – Entrainment characterization study
(r)(10) – Comprehensive technical feasibility and cost evaluation study
(r)(11) – Benefits valuation study
(r)(12) – Non-water quality environmental and other impacts study
(r)(13) – Peer review of (r)(10), (r)(11), and (r)(12)

In accordance with 40 CFR §125.98(b)(6), the above ensures that the Director will have all the information necessary to establish Best Technology Available (BTA) requirements for impingement mortality and entrainment in the subsequent permit. In the interim, based on an evaluation of available information on the facility's cooling water intake structure used by the permittee, the Department has determined using Best Professional Judgement (BPJ) that the cooling water intake structure represents BTA to minimize adverse environmental impact in accordance with Section 316(b) of the federal Clean Water Act (33 U.S. Code section 1326).

Within 180 days of the permit effective date, the permittee shall submit a report with updated information required under §122.21(r)6) outlining the permittee's chosen method of compliance with impingement mortality standards. Based on the permittee's decision to comply with the option outlined in §125.94(c)(2) to operate the ERCW with a maximum design through-screen intake velocity of 0.5 feet per second, the permittee shall include in the report documentation to demonstrate compliance with intake velocity requirements. The report should also include a compliance schedule for implementing the chosen method of compliance with impingement mortality standards and completion of the technology performance optimization study and impingement mortality reduction.

H. STUDY TO CONFIRM CALIBRATION OF NUMERICAL MODEL

The numerical model used to determine compliance with the temperature requirements for Outfall 101 shall be the subject of a calibration study once during the permit cycle. Calibration of the diffuser flows and diffuser model calibration shall be done as needed and coordinated with the evaluation of thermal numerical modeling. The study should be accomplished in time for data to be available for the next permit application for reissuance of the permit. A report of the study will be presented to the Division of Water Resources. Any adjustments to the numerical model to improve its accuracy will not need separate approval from the Division of Water Resources; however, the Division will be notified when such adjustments are made. In the event the permittee changes the chosen modeling method used to demonstrate compliance with temperature requirements, the new model shall be calibrated prior to use.

The permittee shall calibrate the flow rate characteristics through the diffusers on a schedule of at least once every two years. When possible, such calibration shall be coordinated with the evaluation of the numerical modeling.

I. INTAKE FOREBAY AERATION

The permittee shall provide supplemental aeration, as necessary, in low-oxygen zones of the intake forebay area to serve as a fish refuge. This shall be outlined in an Intake Forebay Aeration Plan to be maintained by the permittee. The permittee shall submit an updated Plan to the division in the event of a Plan modification. Aeration may be temporarily discontinued during periods of maintenance. The permittee may request approval from the Division to permanently discontinue aeration upon demonstration that supplemental aeration is not necessary for fish survival in the intake forebay.

PART IV

STORM WATER POLLUTION PREVENTION PLAN AND BIOCIDE/CORROSION TREATMENT PLAN

A. STORMWATER POLLUTION PREVENTION PLAN

Stormwater runoff associated with industrial activity that is not discharged to the receiving stream through outfalls permitted in Part I of this permit is currently authorized under the Tennessee Storm Water Multi-Sector General Permit for Industrial Activities (TMSP) with permit number TNR050015. The TMSP requires development, implementation, and routine evaluation and updating of a storm water pollution prevention plan (SWPPP). The permittee shall also ensure that appropriate pollution prevention measures are identified in the SWPPP to minimize the discharge of pollutants in storm water or from ancillary activities via those outfalls described in Part I of this permit. Any necessary plan modifications shall be completed in accordance with the schedules set forth in the TMSP.

The discharger will develop, document, and maintain a SWPPP pursuant to the requirements set forth in the TMSP, Sector O ("*Storm Water Discharges Associated with Industrial Activity from Steam Electric Power Generating Facilities*"), Part 3 ("Storm Water Pollution Prevention Plan Requirements"). The plan shall be signed by either a principal executive officer of a corporation, the owner or proprietor of a sole proprietorship, or a partner or general partner of a partnership. Stormwater concerns associated with this facility are covered in the general permit and will therefore not be addressed in detail in this permit.

B. BIOCIDE/CORROSION TREATMENT PLAN (B/CTP)

The use of toxic chemicals at the site for process and non-process flows shall be managed under a Biocide/Corrosion Treatment Plan (B/CTP). The B/CTP shall describe chemical applications and macroinvertebrate controls and include all material feed rates with proposed monitoring schedules. The permittee shall conduct treatments of intake or process waters under this permit using biocides, dispersants, surfactants, corrosion inhibiting chemicals, or detoxification chemicals in accordance with conditions approved and specified in the B/CTP.

The permittee shall maintain the B/CTP at the facility and make the plan available to the Division upon request. The permittee shall amend the B/CTP whenever there is a change in the application of the chemical additives or change in the operation of the facility that could significantly change the nature or increase the quantity of pollutants discharged. The Division shall also be notified in writing 30 days prior to any material changes that will change the active ingredients or quantities used of any such chemical additives.

The 2019 B/CTP states that the discharge concentration for Towerbrom 960 is "[l]ess than NPDES permit limits for total residual chlorine". At the time of submittal of the B/CTP, the limit for TRC was 0.1 mg/L. The limit for TRC is more stringent in this permit. **Within 90 days of the permit effective date, the permittee shall submit an updated B/CTP reflecting new TRC**

limits included in this permit. The permittee must ensure that discharge concentrations of Towerbrom 960 remain below the new TRC concentrations.

The permittee shall submit an annual B/CTP report by January 31st of the following year for the duration of the permit. This report should describe the application of biocide and corrosion treatment chemicals throughout the year, including quantity of chemicals added, duration of application, and results from biomonitoring tests as outlined in the approved B/CTP.

C. DOCUMENTATION

The permittee shall maintain the SWPPP and the B/CTP plans at the facility and shall make the plans available to the permit issuing authority upon request.

D. SWPPP & B/CTP MODIFICATION

The permittee shall amend the SWPPP or B/CTP plans whenever there is a change in the facility or change in the operation of the facility that materially increases the potential for the ancillary activities to result in a discharge of significant amount of pollutants. **A current B/CTP must be submitted with each permit renewal application.**

E. MODIFICATION FOR INEFFECTIVENESS

If either the SWPPP or B/CTP plans prove to be ineffective in achieving the general objective of preventing the release of significant amounts of pollutants to surface waters and the specific objectives and requirements under Section B, the permit shall be subject to modification pursuant to 40 CFR § 122.62 or §122.63 to incorporate revised SWPPP or B/CTP requirements. Any such permit modification shall be subject to review in accordance with the procedures for permit appeals set forth in accordance with Tenn. Code Ann. §69-3-110.

F. COMPLIANCE SCHEDULE

The SWPPP and B/CTP plans shall be maintained and the permittee shall begin implementation of any updates of the plan within six months after the effective date of this permit.

ADDENDUM TO RATIONALE

Prepared by: Sarah Terpstra
July 20, 2020

Prior to final issuance of the permit, it was brought to the division's attention that the "sample type" for flow measurement for Internal Monitoring Point (IMP) 103 was mistakenly listed as "totalizer". The correct method of flow measurement for IMP 103 should be "instantaneous", and the permit has been corrected. No other changes were made to the permit.

RATIONALE

Tennessee Valley Authority (TVA) - Sequoyah Nuclear Plant

NPDES PERMIT NO. TN0026450
Soddy Daisy, Hamilton County, Tennessee

Permit Writer: Ms. Sarah Terpstra

I. DISCHARGER

Tennessee Valley Authority (TVA)
Sequoyah Nuclear Plant (SQN)
Sequoyah Access Road
Soddy Daisy, Hamilton County, Tennessee
Site Longitude: -85.091111 Site Latitude: 35.223056

Official Contact Person:
Mr. Anthony L.Williams
Vice President
(423) 843-7001

Nature of Business:
Production of electric power by thermonuclear fission and other associated operations. Permit extends thermal variance authorized under Sec. 316(a) of Clean Water Act.

SIC Code(s):	**4911**
Industrial Classification:	**Primary**
Discharger Rating:	**Major**

PRIMARY INDUSTRY CATEGORY means any industry category listed in the NRDC Settlement Agreement (Natural Resources Defense Council v. Train, 8 ERC 2120 [D.D.C. 1976], modified 12 ERC 1833 [D.D.C. 1979]).

II. PERMIT STATUS

Issued May 01, 2015
Expired December 31, 2018
Application for renewal received June 29, 2018

Watershed Scheduling
Environmental Field Office: Chattanooga
Primary Outfall Longitude: -85.0899 Primary Outfall Latitude: 35.2164
Hydrocode: 06020001 Watershed Group: 3
Watershed Identification: Tennessee River (Hamilton Co. except Chattanooga - Chickamauga)
Target Reissuance Year: 2025

III. FACILITY DISCHARGES AND RECEIVING WATERS

The Tennessee Valley Authority (TVA) discharges process and non-process wastewater at the Sequoyah Nuclear Plant through Outfalls 101 (& 101E), 110, 116, 117, and 118, and Internal Monitoring Points (IMPs) 103 and 107, and also operates Cooling Water Intake Structures on the Tennessee River. The primary outfall at the facility is Outfall 101, which discharges to the Tennessee River at mile 483.65. Appendix 1 summarizes facility discharges and the receiving stream information for the relevant outfalls.

Storm water discharges associated with the industrial activity of this facility are covered by the Tennessee Multi-Sector General Storm Water Permit TNR050015. Stormwater concerns associated with this facility are covered in the general permit and will, therefore, not be addressed in detail in this permit.

The Chickamauga Reservoir portion of the Tennessee River is considered to be fully supporting of all designated uses as outlined in Rule 0400-40-04, including Fish and Aquatic Life, Recreation, Domestic Water Supply, Industrial Water Supply, Irrigation, and Livestock Watering and Wildlife. Biological data submitted by TVA with the permit application addresses the condition of the fishery in the Chickamauga Lake. These data are discussed below as part of the analyses of thermal effects of cooling water discharges. Based on communications with the United States Fish and Wildlife Service, no federally listed threatened or endangered species or designated critical habitat are known to exist in the vicinity of the facility's cooling water intake.

Flow is regulated in the Tennessee River at the Sequoyah Nuclear Plant by upstream operations of Watts Bar Dam at river mile 529.9 and downstream operations of the Chickamauga Dam at river mile 471. As a regulated stream, Tennessee Rule 0400-40-03-.05(4) requires the application of the minimum critical low flow based on the 1Q10 recurrence interval, or the lowest 1-day average flow that occurs on average once every 10 years. Previous permits utilized a 1Q10 minimum flow value of 5400 cfs (3491 MGD) based on a period of record of 1969-1992 at gage station 03568000. However, based on flow data at the Chickamauga Dam for a period of record of 2004-2018 provided by TVA, the **1Q10 critical low flow is 3800 cfs (or 2465 MGD) and the 30Q5 critical low flow is 7200 cfs (or 4653 MGD).** This represents a reduction in low flow conditions. Given that this data is based on a more recent period of record and more accurately reflects current conditions in the Tennessee River, these values will be utilized for calculations in this permit.

Note on radiological discharges: Effluent discharges authorized through a NPDES program cannot cause a condition of pollution or a discharge of toxics in toxic amounts. Any substance, including radioactive materials, is of interest to our agency if it has reasonable potential to exceed applicable water quality criteria. However, radioactive releases to the environment, notwithstanding point source discharges authorized under this permit, are not regulated under the Clean Water Act but are instead regulated under the Nuclear Regulatory Commission (NRC) by issuance of an Operating License. Pertinent regulations are found under 10 CFR Part 20 and 10 CFR Part 50. Sequoyah Nuclear Plant effluents that may contain radioactive material are not addressed as part of the NPDES permitting process.

IV. APPLICABLE EFFLUENT LIMITATIONS GUIDELINES

The Standard Industrial Classification (SIC) code for Tennessee Valley Authority (TVA) at the Sequoyah Nuclear Plant is 4911 (Electric Services). Process wastewater discharged through Outfall 101 and Internal Monitoring Points 103 and 107 are regulated by 40 CFR Part 423 – Steam Electric Power Generating Point Source Category under §423.12 for best practicable control technology currently available (BPT) and §423.13 for best available technology economically achievable (BAT). Appendix 2 lists the applicable effluent limitations guidelines. Certain variances are included in the permit to comply with Section 316(a) of the Clean Water Act (CWA).

V. PREVIOUS PERMIT LIMITS AND MONITORING REQUIREMENTS

Appendix 3 lists the permit limitations and monitoring requirements as defined in the previous permit.

Previous permit terms related to compliance with CWA Sections 316(a) and 316(b) included submission of biological monitoring data conducted in 2016. The data relevant to thermal conditions and permit limits are discussed below in Section XII, and data relevant to cooling water intake structures are discussed in Section XIII.

VI. HISTORICAL MONITORING AND INSPECTION

During the previous permit term, Tennessee Valley Authority (TVA) did not report any violations of the applicable effluent limitations. A summary of the data reported in Discharge Monitoring Reports during the previous permit term is summarized in Appendix 4.

During the previous permit term, the division's personnel from the Chattanooga Environmental Field Office performed two Compliance Evaluation Inspections (CEIs) of the Sequoyah Nuclear Plant. The CEI performed on September 2, 2016 found the permittee to be out of compliance due to failing to repair or replace a flow meter at IMP 103, and the Division issued a Notice of Violation on January 20, 2017. The CEI performed on September 7, 2018 found the permittee to be in compliance.

VII. NEW PERMIT LIMITS AND MONITORING REQUIREMENTS

The proposed new permit limits have been selected by determining a technology-based limit and evaluating if that limit protects the water quality of the receiving stream. If the technology-based limit would cause violations of water quality, the water quality-based limit is chosen. The technology-based limit is determined from EPA effluent limitations guidelines if applicable (see Part IV); or from State of Tennessee maximum effluent limits for effluent limited segments per Rule 0400-40-05-.08. Note that in general, the term "anti-backsliding" refers to a statutory provision that prohibits the renewal, reissuance, or modification of an existing NPDES permit that contains effluents limits, permit conditions, or standards that are less stringent than those established in the previous permit.

In its application, TVA requested that the current biomonitoring limit at Outfall 101 be maintained for IC_{25} at 42.8% effluent. This request cannot be granted. This permit changes the effluent concentration for IC_{25} to 69% due to updated flow for the receiving stream. More information on the calculation of biomonitoring limits can be found in Section VII.

Monitoring for Internal Monitoring Point 107 has been reinstated in this permit. Monitoring for routine stormwater decanting is not required. However, during dewatering of the metal cleaning waste ponds, daily monitoring for pH, TSS, Oil & Grease, copper, and iron is required for the duration of the dewatering event. See Part VII. C. below for more information.

Appendix 5 lists the proposed effluent limitations and monitoring requirements for all outfalls to be included in the new permit.

A. OUTFALL 101 (& 101E)

Outfall 101 is the largest volume discharge from the TVA Sequoyah Nuclear facility and is primarily composed of once through cooling waters. It also contains stormwater and wastewater from the internal monitoring points IMP 103 and IMP 107. Outfall 101E is an emergency discharge outfall which also discharges into an embayment of the Chickamauga Reservoir. In the event of an emergency discharge through Outfall 101E, the limits for Outfall 101 apply. Discharge to Outfall 101 is by gravity feed to two diffusers from the diffuser pond. The diffuser pond does not have a significant holding capacity for the discharges and the residence time for water in the pond is relatively short at several hours.

1. Flow

Monitoring of flow quantifies the load of pollutants to the stream. Flow shall be continuously monitored at the time of sample collection and reported in Million Gallons per Day (MGD). Between October 2015 and January 2020, the average monthly average flow was 1684 MGD, and the maximum reported flow was 2227 MGD.

2. Oil and Grease

The federal effluent guidelines establish oil and grease limits of 15.0 mg/L (monthly average) and 20.0 mg/L (daily maximum) for low volume waste sources and metal cleaning wastes in 40 CFR §423.12(b)(3) and §423.12(b)(5). TVA is limited for Oil and Grease at IMP 103 for the Low Volume Waste Treatment Pond, which satisfies the federal requirement. **Limits for Oil and Grease are not required for Outfall 101**.

3. Total Suspended Solids (TSS)

The federal effluent guidelines establish total suspended solids (TSS) limits of 30.0 mg/L (monthly average) and 100.0 mg/L (daily maximum) for low volume waste sources and metal cleaning wastes in 40 CFR §423.12(b)(3) and §423.12(b)(5). TVA is limited for TSS at IMP 103 for the Low Volume Waste Treatment Pond, which satisfies the federal requirement. **Limits for TSS are not required for Outfall 101**.

4. 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 lie within the range of 6.0 to 9.0 and shall not fluctuate more than 1.0 unit in this range over a period of 24-hours. Additionally, in 40 CFR §423.12(b)(1), the federal effluent guidelines establish a pH range of 6.0 to 9.0 for all discharges except once through cooling water. TVA monitors pH at IMP 103 for the Low Volume Waste Treatment Pond, which satisfies the state and federal requirements. **Limits for pH are not required for Outfall 101.**

5. Total Residual Chlorine

Practicable technology-based (BPT) and best available technology (BAT) limits of 0.2 mg/L monthly average and 0.5 mg/L daily maximum limits apply to free available chlorine in once-through cooling water in accordance with 40 CFR §423.13(b). The total residual chlorine (TRC) test includes all chlorine species measured in the free available chlorine test as well as other chlorine compounds. Thus, the permit writer retains the TRC test in place of the free available chlorine test for compliance with the 40 CFR limitations.

Water quality limits of 0.027 mg/L for monthly average and 0.047 mg/L for daily maximum for TRC are calculated to protect water quality as shown in Appendix 2A based on the discharge flow of 1692 MGD at Outfall 101. The flow used in the calculation was the long-term average flow obtained from application form 2C, part V, provided by TVA.

Water quality limits are more stringent than effluent limitations guidelines. **Therefore, this permit establishes a monthly average TRC limit of 0.027 mg/L and a daily maximum limit of 0.047 mg/L.** The sample type will be grab and the frequency will be weekly. This frequency is consistent with the frequency requirements in other TVA permits, including Watts Bar Nuclear.

Compliance with the previous permit's monthly average and daily maximum limits of 0.1 mg/L were derived based on a mass balance calculation. This was done at the time in part because TRC decays over time and TVA was unable to sample the effluent within the required period of time due to the location of the outfall, and there was historically no portable testing equipment with sufficient sensitivity to meet the required method detection level (MDL) within the required period of time. Since sufficiently sensitive portable testing equipment is now available, this permit implements water-quality based TRC limits.

The acceptable methods for analysis of TRC are any methods specified in Title 40 CFR, Part 136 as amended. The 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 higher 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 limit. The reportable limit of 0.05 mg/L is higher than the monthly average limit of 0.027 mg/L and the daily maximum limit of 0.047 mg/L for TRC. Therefore, the reportable limit of 0.05 mg/L will effectively be used to demonstrate compliance with the effluent limitations. Please note that any TRC detected at or above the detection level will constitute a violation of the permit.

6. Polychlorinated Biphenyl (PCBs)

According to federal effluent guidelines, no discharge of polychlorinated biphenyl compounds (PCBs) will be allowed. **Monitoring for PCB will be required once per permit cycle to ensure compliance with the federal guidelines.** Sample type will be grab**.**

7. Temperature

The division has approved an alternate thermal limit (ATL) for the TVA Sequoyah Nuclear Plant in accordance with Section 316(a) of the Clean Water Act. See Section XII below for more information regarding temperature limits at Outfall 101, and TVA's compliance with Section 316(a).

B. INTERNAL MONIORING POINT 103

Internal Monitoring Point (IMP) 103 is an internal sampling point for various flows treated in the Low Volume Waste Treatment Pond (LVWTP) which then flow into the Diffuser Pond. The Diffuser Pond eventually discharges to the Tennessee River via diffusers at Outfall 101. Wastewater in the LVWTP includes wastewater from the Essential Raw Cooling Water (ERCW) system, the Raw Cooling Water (RCW) system, the Lined Metal Cleaning Waste Pond, the Turbine Building Sump, and discharges from pressure washing and vehicle washing. IMP 103 will remain the primary monitoring and compliance point for low volume waste prior to dilution in the Diffuser Pond in accordance with Effluent Limitations Guidelines as outlined in Appendix 2. The term *low volume waste sources* means, taken collectively as if from one source, wastewater from all sources except those for which specific limitations are otherwise established in this part. Low volume waste sources include, but are not limited to: wastewaters from wet scrubber air pollution control systems, ion exchange water treatment system, water treatment evaporator blowdown, laboratory and sampling streams, boiler blowdown, floor drains, cooling tower basin cleaning wastes, and recirculating house service water systems.

In its application, the permittee requested that the monitoring frequency for flow and pH at IMP 103 be reduced from weekly to monthly. The permittee reported no violations for any parameters at IMP 103 between March 2014 and January 2020. Following guidance provided in EPA's memo on reduction of monitoring frequencies[1], the division will grant the permittee's request to reduce monitoring frequency at IMP 103. The monitoring frequency for all parameters at IMP 103 will be monthly.

1. Flow

Flow shall be reported in Million Gallons per Day (MGD) and monitored at the time of sample collection. Flow will be recorded based on a totalizer.

[1] EPA Memo, Interim Guidance for Performance-Based Reductions of NPDES Permit Monitoring Frequencies, April 19, 1996.

2. Oil and Grease

According to the State of Tennessee Water Quality Standards for the protection of Fish & Aquatic Life [Chapter 0400-40-03-.03(3) (c)], there shall be no distinctly visible solids, scum, foam, oily slick, or the formation of slimes, bottom deposits or sludge banks of such size or character that may be detrimental to fish and aquatic life in the receiving stream.

Additionally, the effluent guidelines require that the low volume waste sources be limited for oil and grease as established in 40 CFR §423.12(b)(3). **This permit maintains a monthly average limit for oil and grease of 15 mg/L and a daily maximum limit of 20.0 mg/L.** Sampling will be once per month by grab sample.

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 according to the effluent guidelines established in 40 CFR §423.12(b)(3). **This permit maintains a monthly average limit for TSS of 30.0 mg/L and a daily maximum limit of 100.0 mg/L**. Sampling will be once per month by grab sample.

4. 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 lie within the range of 6.0 to 9.0 and shall not fluctuate more than 1.0 unit in this range over a period of 24-hours. Moreover, 40 CFR §423.12(b)(1) states “the pH of all discharges, except once through cooling water, shall be within the range of 6.0 – 9.0”. **Effluent limitations for pH will be retained in this permit in a range 6.0 to 9.0 SU.** The frequency will be monthly, and sample type will be grab.

C. INTERNAL MONITORING POINT 107

Internal Monitoring Point 107 was previously used to check compliance with effluent guidelines for metal cleaning wastewater as outlined in 40 CFR §423.12(b)(5). The influent lines to the metal cleaning waste ponds are disconnected and capped and metal cleaning wastewater is no longer discharged into the ponds. The previous permit allowed routine discharge of stormwater through these ponds without monitoring. During dewatering events associated with closing the metal cleaning waste ponds, which are expected to be rare, the permittee was required to sample for TSS, oil and grease, copper, and iron at Outfall 101 for compliance with federal effluent guidelines. However, the dilution afforded by the diffuser pond prior to discharge via Outfall 101 makes it impossible to ensure compliance with federal guidelines during dewatering events. Therefore, this permit reinstates daily monitoring requirements for flow, TSS, oil and grease, pH, copper, and iron at IMP 107 as specified below only during dewatering events, for the duration of the dewatering event. The permittee is still not required to monitor discharge of routine decanting of accumulated stormwater at IMP 107 and shall indicate “monitoring not required” during these circumstances.

1. Flow

Flow shall be reported in Million Gallons per Day (MGD) and monitored at the time of sample collection. Flow will be recorded based on a totalizer.

2. Oil and Grease

According to the State of Tennessee Water Quality Standards for the protection of Fish & Aquatic Life [Chapter 0400-40-03-.03(3) (c)], there shall be no distinctly visible solids, scum, foam, oily slick, or the formation of slimes, bottom deposits or sludge banks of such size or character that may be detrimental to fish and aquatic life in the receiving stream.

Additionally, the effluent guidelines require that the low volume waste sources be limited for oil and grease as established in 40 CFR §423.12(b)(5). **This permit maintains a monthly average limit for oil and grease of 15 mg/L and a daily maximum limit of 20.0 mg/L.** Sampling will be daily by grab sample during dewatering events.

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 according to the effluent guidelines established in 40 CFR §423.12(b)(5). **This permit maintains a monthly average limit for TSS of 30.0 mg/L and a daily maximum limit of 100.0 mg/L**. Sampling will be daily by grab sample during dewatering events.

4. 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 lie within the range of 6.0 to 9.0 and shall not fluctuate more than 1.0 unit in this range over a period of 24-hours. Moreover, 40 CFR §423.12(b)(1) states “the pH of all discharges, except once through cooling water, shall be within the range of 6.0 – 9.0”. **Effluent limitations for pH will be established in this permit in a range 6.0 to 9.0 SU.** The frequency will be daily during dewatering events, and sample type will be grab.

D. (INTERNAL) OUTFALL 110 – CLOSED MODE OPERATIONS ONLY

As described in the permit application, a discharge from Outfall 110 only occurs when the power plant operates in closed mode operation, which is infrequent and hasn’t occurred in more than 20 years. Operation in closed mode has been precluded because of operational restrictions that happen when the plant is operated in closed mode, therefore discharge from Outfall 110 is not anticipated to occur. Closed mode operation is when condenser-circulating water is cooled in the cooling towers and is then routed via the cold-water return channel to the intake forebay. Outfall 110 is a sampling point for water passing from the channel into the forebay. The discharge would consist of non-contact cooling water, including primary condenser circulating water, the essential raw cooling water, and raw cooling water. Other waters would be from the liquid rad waste system, regeneration wastes from the condensate demineralizer, and steam generator blowdown.

Outfall 110 will be limited with the same permit limitations established for Outfall 101 when operated in closed mode only. If discharge occurs, the permittee will monitor and report on the discharge using the same sampling and analysis protocols established for Outfall 101. When no discharge occurs, the permittee shall report no discharge (NODI code C) on monitoring reports in NetDMR.

When the facility operates in closed mode, the mixing zone boundaries change to include the intake forebay. Mixing zone temperature compliance calculations only apply at Outfall 101; temperature will not be limited for Outfall 110 discharges.

E. OUTFALLS 116 & 117

Discharges through Outfalls 116 and 117 result from backwashing wastewater from the screens and strainers of the water intake for Condenser Circulating Water (CCW) for Outfall 116 and the intake for Essential Raw Cooling Water (ERCW) for Outfall 117. No limits or monitoring requirements are required for these outfalls.

F. (INTERNAL) OUTFALL 118 - INACTIVE

Outfall 118 drains the ERCW dredge pond to the intake forebay. Presently the pond is not in service and discharges small amounts of stormwater from vegetated areas. The previous outfall limitations were established for discharges from the pond when it was in service, including a daily maximum limit for settleable solids of 1.0 mL/L, a daily maximum limit for TSS of 100 mg/L, and a minimum limit for dissolved oxygen of 2.0 mg/L. These limits are not necessary for current conditions since the pond was emptied of dredged water and vegetation was established. However, at the permittee's request, the previous limits will remain in the permit in the event the pond is ever put back into service. While the pond is not in service, the permittee shall report no discharge (NODI code C) on monitoring reports in NetDMR.

G. ADDITIONAL MONITORING REQUIREMENTS & CONDITIONS

In addition to the specific numerical limitations for each outfall discussed above, there are numerous general requirements that apply to all outfalls. These requirements are discussed below:

1. 40 CFR §423.12(b)(2) for BPT and §423.13(a) for BAT specify "[t]here shall be no discharge of polychlorinated biphenyl compounds such as those commonly used for transformer fluid." This is retained in the new permit for all outfalls for compliance with federal requirements.

2. 40 CFR §423.12(b)(8) for BPT states that "[n]either free available chlorine nor total residual chlorine may be discharged from any unit for more than two hours in any one day and not more than one unit in any plant may discharge free available chlorine or total residual chlorine at any one time unless the utility can demonstrate to the Regional Administrator or State…that the units in a particular location cannot operate at or below this level of chlorination."

40 CFR §423.13(b)(2) for BAT requirements specific to once through cooling water also states that for plants with a rated electric generating capacity of 25 or more megawatts "[t]otal residual chlorine may not be discharged from any single generating unit for more than two hours per day unless the discharger demonstrates to the permitting authority that discharge for more than two hours is required for macroinvertebrate control. Simultaneous multi-unit chlorination is permitted."

40 CFR §423.31(d)(2) for BAT requirements specific to cooling tower blowdown states "[n]either free available chlorine nor total residual chlorine may be discharged from any unit for more than two hours in any one day and not more than one unit in any plant may discharge free available or total residual chlorine at any one time unless the utility can demonstrate to the Regional Administrator or State…that the units in a particular location cannot operate at or below this level of chlorination."

These requirements are potentially applicable to Outfall 101 (and Outfall 110 in Closed Mode). Chlorine is not added to the Condenser Circulating Water System (once-through cooling water) or to the high-pressure fire protection system (when flushed) at the SQN facility. With regard to cooling tower blowdown, TVA has made a demonstration to the division the facility cannot operate the cooling towers under these requirements without significant damage to the system and potentially jeopardizing operational safety. **These requirements were not in the previous permit and will not be included in this permit.**

3. 40 CFR §423.13(d)(1) for BAT requirements for cooling tower blowdown establishes monthly average and daily maximum effluent limitations for the 126 priority pollutants of "no detectable amount", except for total chromium and total zinc. However, §423.13(d)3) allows the permitting authority, at its discretion, to utilize engineering calculations which demonstrate that the regulated pollutants are not detectable in the final discharge by analytical methods in 40 CFR §136. This requirement is potentially applicable to Outfall 101. TVA has provided data that demonstrates that priority pollutants will not be added to the system in quantities that will be detectable in cooling tower blowdown. Moreover, the data provided in Form 2C of the application indicates that the priority pollutants, including chromium and zinc, were not present in detectable amounts. Therefore, the following statement is included in the permit: "Priority pollutants will not be discharged in cooling tower blowdown in amounts that are detectable by analytical methods in 40 CFR Part 136. Monitoring for the priority pollutants, including chromium and zinc, will not be required unless making an application for a new NPDES permit."

4. Bromine products may be used at times in the raw water system. For purposes of measurement of TRC in the permit, analyses shall include residual bromine with the results reported as chlorine. Thus, there is no separate test for residual bromine, but one test for situations where combinations of chlorine and bromine are being used.

5. It is recognized that the permittee must use biocides and corrosion inhibitor products to properly operate the facility. Because the chemicals in these products may be detrimental to fish and aquatic life in the receiving stream, there is a need to evaluate the nature of the chemicals, the dosage to be used, the duration of use, the effluent concentration, and the need for treatment prior to discharge. Previous permits addressed biocide/slimicide and corrosion inhibitor products use as the site for process and non-process flows in the BMP program. A program for managing the use of these products has been developed

and approved under the Biocide/Corrosion Treatment Plan (B/CTP). The permittee shall not conduct treatments of intake or process waters under this permit using biocides, dispersants, surfactants, corrosion inhibiting chemicals, or detoxification chemicals except in accordance with conditions specified under the written B/CTP, which has been given prior approval on April 27, 2005 (including revisions), by the division. The mechanism to alter these applications is by formally amending the B/CTP and communicating any planned changes with the division.

VIII. BIOMONITORING REQUIREMENTS, CHRONIC

The discharge of industrial wastewater from Outfall 101 may contain several different pollutants due to biocide and corrosion inhibitors, the combined effect of which has a reasonable potential to be detrimental to fish and aquatic life. The Tennessee Water Quality Standards criteria stipulates that "*The waters shall not contain toxic substances, whether alone or in combination with other substances, which will produce toxic conditions...*".

Biomonitoring will provide information relative to the toxicity of the discharge. When the receiving stream is a source of water at the facility, the Dilution Factor is calculated as follows:

$$DF = \frac{Qs}{Qw} = \text{Dilution Factor}$$

where Qw is a wastewater flow (Qw = 1692 MGD) and Qs is a receiving stream low flow (1Q10, estimated at 2456 MGD). Please refer to Appendix 1 for details regarding facility discharge and receiving stream.

$$DF = \frac{2456}{1692} = 1.5$$

Since the calculated dilution factor is less than 100:1, protection of the stream from chronic effects requires:

$$IWC \leq 1.0 \text{ X } IC25; \text{ or,}$$

$$\text{INHIBITION CONCENTRATION, 25\%} \geq IWC$$

Where IWC is Instream Waste Concentration and is calculated using the following formula:

$$IWC = \frac{Qw}{Qs} \text{ X } 100 = \text{Instream Waste Concentration}$$

$$IWC = \frac{1692}{2456} \text{ X } 100 = 68.9\ \%$$

Therefore, chronic toxicity WET testing will be required on 69% effluent. If toxicity is demonstrated in any of the effluent samples specified above, this will constitute a violation of this permit.

The toxicity tests specified herein shall be conducted twice per year for Outfall 101 according to the specifications outlined in the B/CTP and shall begin during the first chemical application requiring biomonitoring following the effective date of this permit. Details regarding biomonitoring methodology can be found in Part III of the permit.

IX. STORMWATER

The Tennessee Multi-Sector General Stormwater Permit (TMSP) covers stormwater discharges associated with the industrial activity at this site under tracking number TNR050015. Stormwater concerns associated with this facility are covered in this general permit, so they will not be addressed in detail in this individual NPDES permit.

It is the intent of the division that the permittee institutes a Storm Water Pollution Prevention Plan (SWPPP) in order to minimize the discharge of pollutants from stormwater outfalls. It is the division's opinion that the best method for dealing with potential pollution associated with stormwater discharges from the TVA SQN facility is through implementation of an aggressive SWPPP coupled with the TMSP to verify SWPPP discharge monitoring effectiveness.

In order to assist the permittee in the evaluation of the effectiveness of the SWPPP, benchmark values (cut-off concentrations) were developed for the TMSP for Industrial Activities were developed by the EPA and the State of Tennessee and are based on data submitted by similar industries for the development of the multi-sector general storm water permit. The cut-off concentrations are target values and should not be construed to represent permit limits.

The new permit contains a requirement that a SWPPP be developed and maintained to regulate stormwater runoff. This SWPPP is meant to ensure that runoff from the facility site is not a significant source of pollution to the receiving stream. The discharger will develop, document, and maintain the SWPPP pursuant to the general requirements as set forth in the TMSP, Sector O, "*Storm Water Discharges Associated with Industrial Activity from Steam Electric Power Generating Facilities, Including Coal Handling Areas*", Part 3, "Stormwater Pollution Prevention Plan Requirements". The effectiveness of this SWPPP will be examined by requiring stormwater monitoring data be submitted of the combined process/stormwater discharges. At that time, should the results so dictate, the division maintains the authority to institute specific numeric limitations for the monitored parameters.

X. OTHER REQUIREMENTS

A. BEST MANAGEMENT PRACTICES

Best management practices (BMPs) are included in the permit and will apply to the activity that is likely to cause or contribute to pollution of the state's waters. The BMPs under this permit may be combined into a single document with the SWPPP required under the TMSP TNR050015 if the permittee so chooses.

Liquid radwaste is treated by a liquid radwaste system and discharged into the cooling channel. The water discharged is mixed with the cooling water and discharged through Outfall 101. Liquid radwaste treatment is to collect and treat those liquids, which are radioactive or potentially radioactive. The treatment typically includes activated carbon, cation exchange resins, and a mixed bed resin. Chemical pollutant concerns are minimal, for this waste. Past data and process knowledge indicate that the effluent requirements for low volume wastes are met for this system. The liquid radwaste will be handled according to the permittee's BMP plan at the site.

Best management practices will be included for toxics and hazardous materials control as well as pollutants defined under the Tennessee Water Quality Control Act. The BMP plan shall also include:

1. Biocide treatments for in-plant systems and an approved mechanism for notification and division approval that should not delay changes needed to protect both the systems of the facility and all manner of plant and aquatic life in waters of the state. This shall be accomplished by amending the B/CTP, but will not require permit modification.

2. Construction and repairs with potential for pollution contributions that are not routed to an appropriate treatment system.

3. Housekeeping and maintenance standard practices manuals.

4. Minimization of pollutants that could result from the backwash activities at Outfalls 116 and 117.

B. STUDY TO CONFIRM CALIBRATION OF NUMERICAL MODEL

The numerical model used to determine compliance with the temperature requirements for Outfall 101 is the subject of a calibration study once during the permit cycle. In November 2018, TVA provided a study that confirmed the calibration of the model. Calibration of the diffuser flows and diffuser model calibration shall be done as needed and coordinated with the evaluation of thermal numerical modeling.

C. INTAKE FOREBAY AERATION

In January 1990, the permittee entered into an Agreed Order with the division, then the Division of Water Pollution Control, Office of Water Management, to address a fish kill that had occurred in the intake forebay at SQN due to low concentrations of dissolved oxygen (DO). As required by the order, the permittee provided a plan titled "Operating Procedure for Intake Forebay Fish Refuge", which detailed a plan to monitor the intake forebay for DO concentrations and provide supplemental aeration when needed. Subsequent permits have required continuation of this plan, now titled the Intake Forebay Aeration Plan and the permittee provided an updated Intake Forebay Aeration Plan to the division on March 14, 2019. The Plan had been updated to include an action value to bring a temporary compressor onsite when the DO concentration in the intake forebay is below 3.5 mg/L, and aeration would be initiated when DO concentration is below 3.0 mg/L. This permit requires the continuation of the Intake Forebay Aeration Plan.

XI. ANTIDEGRADATION

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# TN06020001020_1000.

The division has made a determination of the receiving waters associated with the subject discharge(s) and has found the receiving stream to be an available conditions water. Additionally, this water is fully supporting of its designated uses. The Department has maintained, and shall continue to assess, the water quality of the stream to assure that the water quality is adequate to protect the existing uses of the stream fully, and to assure that there shall be achieved the highest statutory and regulatory requirements for all new and existing point sources and all cost-effective and reasonable best management practices for nonpoint source control.

No Total Maximum Daily Loads (TMDLs) have been developed for this waterbody segment.

XII. COMPLIANCE WITH CWA 316(A) – ALTERNATE THERMAL VARIANCE

a) 316(a) - Potential Thermal Effects on a Balanced Indigenous Population

Thermal discharges are a concern for potential effects on a Balanced Indigenous Populations (BIP) of fish and other aquatic organisms at Outfall 101. EPA Region IV has indicated that additional aquatic data should be collected during the five-year duration of the subject permit to facilitate the Section 316(a) Alternate Thermal Limit determination in subsequent permits. TVA has developed a study plan outlining proposed assessments to support continuance of the ATL. If changes are made to this plan, an updated version shall be submitted to the division. The plan will be designed to supplement existing information previously provided by TVA. EPA has agreed to this approach and will participate in the review of the plan and the resulting data.

Section 316(a) of the Clean Water Act allows point source discharges of heated water to exceed State water quality thermal criteria based on demonstrating maintenance of a BIP of aquatic life. The TVA Sequoyah Nuclear Plant is operating under a 316(a) thermal variance that was implemented in the 1980s and has been administratively continued under each permit renewal based on studies performed during each permit cycle. The requirement for conducting 316(a) studies in Tennessee comes from EPA Region IV guidance to the States requiring future variance requests to be granted on new data generated to show aquatic communities meet the BIP standard.

In 2001, TDEC approved the TVA program for Reservoir Fish Assemblies Index (RFAI) studies to support the continuation of thermal variances. RFAI data is collected biannually at stations upstream and downstream from the plant in Chickamauga Lake. With is June 2018 permit renewal application, TVA submitted a report summarizing the results of biological monitoring of the Tennessee River conducted near the SQN plant during autumn 2015. The report also included data from 2000 through 2015. Biological monitoring included monitoring fish, benthic macroinvertebrates, the wildlife community, thermal plume mapping, and basic water quality

parameters. The report examined data collected at locations upstream and downstream from SQN and was submitted in support of TVA's request for the continuation of the 316(a) variance from the previous permit. TVA stated that "[a]nalyses of the data collected indicated that healthy fish, benthic macroinvertebrate, and wildlife communities existed both upstream and downstream of the SQN thermal discharge and that the heated SQN effluent did not adversely impact these communities during 2015."

Division personnel reviewed the data provided in TVA's *Biological Monitoring of the Tennessee River near Sequoyah Nuclear Plant Discharge, Autumn 2015"*. A review of RFAI scores from 1999 to 2015 indicated a possible decline in overall reservoir biological health both upstream and downstream of SQN. However, since both upstream and downstream scores indicated a downward trend, the data did not indicate that TVA is affecting RFAI scores. During this permit term, the division will require TVA to perform summer sampling in order to compare summer data to historical fall sampling events. Division personnel identified no substantial difference in the fish community in the Chickamauga Reservoir upstream and downstream of SQN and determined that data met the BIP standard.

As required by the previous permit and Section 316(a), TVA has conducted studies to demonstrate BIP per the reservoir monitoring approach deemed acceptable to TDEC and EPA Region IV. There have been no significant changes to SQN design and/or operations since the previous study that would bring about material changes in the established characteristics of the thermal discharge and no changes are reasonably foreseen for the term of this permit. As such, the division concludes that the results of the previous 316(a) demonstration study remain valid and representative of thermal discharge effects on the receiving waterbody. Existing data demonstrate the maintenance of BIP in the receiving waterbody. **Therefore, based on these findings, TDEC will extend the thermal variance in the renewed permit.**

b) Thermal Limits and Monitoring Requirements

This permit requires compliance with Tennessee effluent temperature criteria except for the winter months of November through March when a variance is allowed for the temperature difference between upstream and downstream points to be as great as 5 °C. Otherwise, temperature shall be limited according to the State of Tennessee Water Quality Standards for the protection of Fish & Aquatic Life as outlined in Chapter 0400-40-03-.03(3)(e). It is recognized that the temperature of the cooling water discharge will be greater than the temperature of the water prior to its use for cooling or other purposes. This discharge shall not cause the temperature change in the receiving stream to exceed 3 °C relative to an upstream control point for the summer months of April through October. Also, this discharge shall not cause the temperature of the receiving stream to exceed 30.5 °C, except as a result of natural causes, and this discharge shall not cause the maximum rate of temperature change in the receiving stream to exceed 2 °C per hour, except as a result of natural causes.

The calculated and measured temperatures of the effluent are reported electronically on the monthly Discharge Monitoring Reports (DMRs) in NetDMR. The temperature difference, rate of change, and receiving stream calculated temperatures are also limited and reported on monthly DMRs. The temperature of the effluent shall not be limited but shall be report only. Exceedances of the 30.5 °C water quality criteria for measured effluent temperature will not be considered a permit violation; the 30.5 °C value applies to the receiving stream and not the effluent temperature itself. When background stream temperatures are warm and approach 30.5 °C as a result of

natural conditions, the Division understands that the plant will operate in Helper Mode, which is defined as the treatment of at least part of the plant effluent by the cooling towers. The permit maximum of 30.5 °C may be exceeded when the instream temperatures exceed 29.4 °C and the plant operates in Helper Mode. In no circumstance shall a one-hour average maximum downstream river temperature exceed 33.9 °C without consent of the permitting authority. When the ambient stream temperature is greater than 29.4 °C, the 1-hour average maximum downstream temperature limit of 33.9 °C becomes the next level of control for operating the plant. Should these conditions occur, the division shall be notified by phone, fax, and/or email as soon as possible (but no later than within 12 hours of calculating these conditions). Compliance with the 30.5 °C maximum limit shall be determined from the 24-hour average.

The 24-hour average temperature rise in the receiving stream shall be calculated by taking measurements continuously (as defined as measurements taken in 15 minute or less intervals). The 24-hour average value shall be determined using the current and previous 96 15-minute measurements. Thus, every 15 minutes a 24-hour average value shall be calculated. The maximum of the 96 observations generated per day by this procedure shall be the daily maximum temperature rise for that day. Similarly, instream river temperatures shall be averaged every 15 minutes to give a "rolling" 24-hour average. To determine compliance with the instream maximum limit of 30.5 °C and the temperature difference between upstream and downstream temperatures, the 24-hour average shall be used.

Tennessee Rule 0400-40-03-.05 applies to temperature monitoring by including protection of the water quality in the mixing zone. According to Rule 0400-40-03-.04 the "mixing zone" is defined as "[t]hat section of a flowing stream or impounded waters in the immediate vicinity of an outfall where an effluent becomes dispersed and mixed." Additionally, Rule 0400-40-03-.05(2) states, in part, that "such mixing zones…shall be restricted in area and length; and shall not (a) prevent the free passage of fish or cause aquatic life mortality in the receiving waters; (b) contain materials in concentrations that exceed acute criteria beyond the zone immediately surrounding the outfall; (c) result in objectionable colors, odors, or other conditions; (d) produce undesirable aquatic life or result in dominance of a nuisance species; (e) endanger the public health or welfare; or (f) impair classified uses; (g) create a condition of chronic toxicity beyond the edge of the mixing zone; (h) adversely affect nursery and spawning areas; or (i) adversely affect species with special state or federal status."

The mixing zone was established in the initial EPA-issued permit on April 1, 1983, and as defined has been retained in TDEC's reissuance of the permit. The definition of the mixing zone for the new permit is continued from the previous permit for the discharge at Outfall 101, which encompasses 1500 feet downstream from the diffusers to 275 feet upstream from the diffusers and 750 feet wide. Depth of the mixing zone includes the entire depth of the reservoir on the downstream side of the diffusers. On the upstream side of the diffusers the mixing zone extends in depth from the surface 275 feet upstream from the diffusers to the top of the diffuser pipes. The initial mixing zone also included the intake forebay and diffuser pond when the plant operated in closed mode. The diffuser pond is not recognized as waters of the State, instead is considered part of the treatment system and therefore is not part of the mixing zone for permit purposes. The intake forebay is recognized as waters of the state but shall be included in the mixing zone only in circumstances when the plant operates in closed mode. The intake forebay connects to the river through openings at the bottom of the skimmer wall. In closed mode operation, relatively little water is coming through the openings in the skimmer wall. Therefore, the intake forebay shall be included in the mixing zone in these circumstances. TVA does not anticipate the operation of the

plant in closed mode. However, if operating in closed mode emerges as a serious possibility, the monitoring requirements for the forebay shall be determined by appropriate study at that time.

The mixing zone is needed for two reasons. It allows mixing for the thermal loading of the effluent before water quality criteria must be met and, for compliance purposes, it allows a well-defined area to be used for actual instream assessments.

During the previous permit cycle, the average difference between upstream and downstream temperatures during winter months was 2.68 °C, and the average difference in temperature during summer months was 2.31 °C. Also during the previous permit cycle, the maximum reported instream temperature was 30.5 °C reported in July 2016; no exceedances of the instream temperature criteria were reported.

Sampling of the effluent flow and temperature shall be continuous and shall be reported on monthly DMRs.

XIII. COMPLIANCE WITH CWA 316(B) – COOLING WATER INTAKE STRUCTURES

A. BACKGROUND

The CWA section 316(b) Existing Facility Final Rule, effective October 14, 2014, applies to existing facilities that use cooling water intake structures (CWIS) to withdraw water from waters of the state and have or require a NPDES permit issued under the Tennessee Water Quality Control Act and Section 402 of the CWA. If a facility meets the conditions specified in 40 CFR § 125.91 as outlined below, it is subject to the rule.

The rule applies to owners and operators of existing facilities that meet all of the following criteria:

- The facility is a point source;
- The facility uses or proposes to use one or more cooling water intake structures with a cumulative design intake flow (DIF) of greater than 2 MGD to withdraw water from waters of the state; and
- 25% or more of the water the facility withdraws on an actual intake flow basis is used exclusively for cooling purposes.

If a facility has or requires a NPDES permit but does not meet the 2 MGD intake flow threshold, it is subject to permit conditions implementing CWA section 316(b) developed by the Director of the Division of Water Resources on a case-by-case basis using Best Professional Judgment (BPJ).

Generally, facilities that meet these criteria fall into two major categories: steam electric generating facilities and manufacturing facilities. The rule makes limited corrections to the requirements for Phase I facilities, or new facilities. The rule establishes national requirements applicable to the location, design, construction, and capacity of cooling water intake structures at existing facilities that reflect the best technology available (BTA) for minimizing the adverse environmental impacts of impingement and entrainment associated with the use of these structures. The rule requires several types of information

collection as part of the NPDES permit application in order to identify if the facility is meeting the rule, or how the facility plans to meet the rule requirements.

B. SPECIFIC DATA REQUIREMENTS WITH PERMIT APPLICATIONS

Specific data requirements that apply to all facilities are outlined below:

- *§122.21(r)(2) – Source water physical data* which shows the physical configuration of all source waterbodies used by the facility, identifies and characterizes the source waterbody's hydrological and geomorphological features, and provides location through maps.
- *§122.21(r)(3) – Cooling water intake structure data* which shows the configuration and location of CWIS, provides details on the design and operation of each CWIS, and diagrams showing flow distribution and water balance.
- *§122.21(r)(4) – Source water baseline biological characterization data* that characterizes the biological community in the vicinity of the CWIS and characterizes the operation of the CWIS.
- *§122.21(r)(5) – Cooling water system data* that, among other things, describes the operation of the cooling water system, its relationship to the CWIS, the proportion of the design intake flow used in the system, the number of days the cooling water system is operational and seasonal changes in operation, as well as design and engineering calculations to support these descriptions.
- *§122.21(r)(6) – Impingement mortality standards compliance* information that describes the facility's selected methods. The specific requirements vary depending on the compliance approach chosen by the facility. This information would be reflected in the facility's Impingement Technology Performance Optimization Study.
- *§122.21(r)(7) – Entrainment performance studies* provide a description of any existing studies of biological survival conducted at the facility and a summary of any conclusions of results.
- *§122.21(r)(8) – Operational status* data that describes the operational status of each generating, production, or process unit.

In addition to the above requirements, existing facilities with actual intake flows in excess of 125 MGD are required as part of the permit application process to submit an entrainment characterization study and related supporting information that has been peer reviewed. These requirements are outlined in §122.21(r)(9) – (13) and summarized below. Facilities that withdraw less than 125 MGD actual intake flow do not have specific permit application requirements for entrainment, but the Director may require additional information on a site-specific basis.

- *§122.21(r)(9) – Entrainment characterization study* including a minimum of two years of entrainment data collection.
- *§122.21(r)(10) – Comprehensive Technical Feasibility and Cost Evaluation Study* which examines the feasibility of all technologies and includes engineering/social cost estimates.

- *§122.21(r)(11) – Benefits Valuation Study* which evaluates the benefits of potential entrainment reduction technologies.
- *§122.21(r)(12) – Non-water Quality Environmental and Other Impacts Study* discussing non-water quality impacts including changes to energy consumption, air pollutant emissions, noise, safety, and reliability.
- *§122.21(r)(13) – Peer review* of every study submitted by the permittee, to be performed by external peers approved in advance by the Director.

Under the Existing Facility Final Rule, a new unit at an existing facility that withdraws more than 2 MGD would have requirements similar to the requirements of a new facility in Phase I. A new unit (as defined by §125.92(u)) is required to reduce flow commensurate with closed-cycle cooling. Alternatively, a facility could demonstrate compliance with the entrainment control requirements by establishing reductions in entrainment mortality for the new unit that are 90% or greater of the reduction that could be achieved by closed-cycle cooling.

Finally, facilities are required to maintain records of all submitted documents, supporting materials, and monitoring results for at least five years. Depending on the compliance method chosen, facilities may also be required to perform compliance monitoring to demonstrate that their selected method of complying with the impingement mortality standard (i.e. screen velocity, actual intake flow, numeric impingement mortality performance) achieves the required performance.

C. APPLICABILITY TO TVA SEQUOYAH NUCLEAR

Significant factors in evaluating applicability of these rules to this TVA permit include:

- TVA submitted a timely application on June 29, 2018, which included the information required under §122.21(r)(2) - (13).
- The application indicated a long-term average discharge of 1692 MGD of primarily non-contact cooling water (plus stormwater and wastewater from the low volume waste treatment pond) through Outfall 101.
- According to the permit application, the facility has an average actual intake flow of approximately 1491 MGD, indicating the design intake flow is greater than the 2 MGD threshold for rule applicability.
- Based on the flow schematic provided with the application (see Appendix 6), essentially all of the water withdrawal is for cooling water purposes.

D. SUMMARY

The Department has determined that the cooling water intake structure used by TVA Sequoyah Nuclear represents BTA to minimize adverse environmental impact associated with entrainment in accordance with Section 316(b) of the federal Clean Water Act (33 U.S.C. section 1326). This determination was made according to the information provided below.

The biological results for entrainment and impingement studies provided in TVA's permit application were shared with the U.S. Fish and Wildlife Service (USFWS) for review. On December 21, 2018, the USFWS informed the division that it found no federally endangered or threatened species in the vicinity of TVA and it had no concerns regarding the conclusions contained in the biological reports. Moreover, division biologists reviewed the reports and did not

find anything of concern but believe that sampling needs to be conducted during the summer at least once per permit cycle for comparison to historical fall sampling data.

In response to requirements for §122.21(r)(6) for compliance with impingement mortality standards, TVA indicated that it would choose to comply with the option outlined in §125.94(c)(3) to operate the intake structure with a maximum design through-screen intake velocity of 0.5 feet per second. It would submit necessary supplemental information for §122.21(r)(6) for compliance with impingement mortality standards after the division's BTA determination for entrainment, which is discussed in more detail below.

As stated above, TVA submitted information in accordance with §122.21(r)(2) - (r)(13). As required by §122.21(r)(13), reports required by §122.21(r)(10) - (r)(12) were peer reviewed by five division-approved consultants and/or consulting firms: Charles Coutant, Ph.D., Oak Ridge National Laboratory (retired); John, Jeff, and Dan Burns, Burns Engineering; Mr. Tom Cook, PE, TetraTech; Jeff Wakefield, Ph.D, Cardno; and a multi-discipline team at Kleinschmidt Environmental. As part of the entrainment characterization study and comprehensive technical feasibility and cost evaluation study, TVA evaluated alternatives to current operations at its facility. The biological benefits were evaluated and quantified for both entrainment and impingement.

First, TVA evaluated a retrofit of a closed-cycle recirculating system to reduce the amount of water (and therefore organisms) withdrawn. This alternative was estimated to result in an overall reduction in plant power output of approximately 740,000 mega-watt hours per year, capital costs of $161 million, and increased annual operation and maintenance costs of $2 million. The alternative was determined to be feasible and resulted in an estimated annualized social cost to benefit ratio of between 1,253 to 1 and 1,433 to 1.

A second evaluated alternative involved the installation of submerged cylindrical narrow-slot wedge-wire screens. Estimated capital costs ranged from $50 million for 2.0 mm screens to $90 million for 0.5 mm screens, and annual operation and maintenance costs were estimated to increase to between $484,000 to $991,000, depending on the screen size. The alternative was determined to be feasible and resulted in an estimated annualized social cost to benefit ratio of between 298 to 1 and 492 to 1.

A third alternative was to install fine-mesh modified screens which would incur an estimated capital cost of $61 million and an approximate increase in annual operation and maintenance costs $419,000. This alternative was determined to be feasible and resulted in an estimated annualized social cost to benefit ratio of between 7,251 to 1 and 32,285 to 1.

The final alternative evaluated by TVA was water reuse or the use of an alternative water supply. Since there are no nearby wastewater treatment plants or any other reasonable sources of supplemental cooling water, it was determined to be infeasible.

In June 2006, the EPA published the 316(b) Final Rule[2] for cooling water intake structures at Phase III facilities. In the Rule, EPA recognized that the implementation of the Rule would be case-by-case based on the judgment that, in some cases, "the monetized costs associated with the primary option under consideration are wholly disproportionate to the monetized

[2] USEPA. 2006. National Pollutant Discharge Elimination System; Establishing Requirements for Cooling Water Intake Structures at Phase III Facilities; Final Rule. Federal Register Vol. 71 No. 116 (June 16, 2006) page 35017.

environmental benefits to be derived from that option." In a referenced case study, the EPA determined that a cost to benefit ratio of 17 to 1 for implementation of alternative technology was "wholly disproportionate to the anticipated monetized benefits" and, therefore, did not represent BTA. Moreover, 40 CFR §125.98(f)(4) states, in part, "[i]f all technologies have social costs not justified by the social benefits, or have unacceptable adverse impacts that cannot be mitigated, the Director may determine that no additional control requirements are necessary beyond what the facility is already doing."

As outlined above, the feasible alternative technologies evaluated by TVA had estimated cost to benefit ratios ranging from 298 to 1 to 32,285 to 1, which would be considered wholly disproportionate to entrainment reduction benefits according to the EPA. Additionally, division biologists and the USFWS reviewed submitted data and indicated no concern with current technologies. Therefore, the division has determined that existing entrainment reduction technologies at TVA-SQN represent BTA.

XIV. ELECTRONIC REPORTING

Starting on December 21, 2016, all Individual NPDES Permit holders were required to submit Discharge Monitoring Reports (DMRs) electronically through NetDMR. The permittee has been submitting electronically via NetDMR since December 9, 2016.

EPA published the National Pollutant Discharge Elimination System (NPDES) Electronic Reporting Rule, which modernized Clean Water Act reporting for municipalities, industries and other facilities. The rule was published in the Federal Register on October 22, 2015 and became effective on December 22, 2015. The rule replaces most paper-based NPDES reporting requirements with electronic reporting.

More information is available at http://www.tn.gov/environment/topic/wr-netdmr-and-electronic-reporting.

XV. PERMIT DURATION

The proposed limitations meet the requirements of Section 301(b)(2)(A), (C), (D), (E), and (F) of the Clean Water Act as amended. It is the general intent of the division to organize the future issuance and expiration of this particular permit such that other permits located in the same watershed and group within the State of Tennessee will be set for issuance and expiration at the same time. The target future reissuance date for the Tennessee River (Hamilton Co. except Chattanooga - Chickamauga) watershed is 2023. However, in order for the permittee to comply with extensive sampling and reporting requirements associated with §316(a) and §316(b), this permit will be reissued for a full five-year cycle.

APPENDIX 1
Facility Discharges and Receiving Waters

OUTFALL 101 (& 101E)

OUTFALL 101 (& 101E)	
LONGITUDE	LATITUDE
-85.0899	35.2164

FLOW (MGD)	DISCHARGE SOURCE
<1%	Low volume waste treatment pond
97%	Condenser Circulating Water (CCW)
2%	Cooling tower blowdown
0.1%	Yard drainage pond
<1%	Stormwater
1692	TOTAL DISCHARGE

RECEIVING STREAM DISCHARGE ROUTE			
Mile 483.65 of the Tennessee River			
STREAM LOW FLOW (CFS) *	7Q10	1Q10	30Q5
	5400	3800	7200
(MGD)	3490	2456	4653

STREAM USE CLASSIFICATIONS (WATER QUALITY)				
AQUATIC LIFE	N	IRRIGATION	LIVESTOCK & WILDLIFE	DOMESTIC WATER SUPPLY
X	X	X	X	X
INDUSTRIAL	NAVIGATION			
X	X			

Treatment: Sedimentation, neutralization, disinfection, ion exchange, filtratrion
* Reference: Tennessee Valley Authority - Chickamauga Dam release data - 2004 - 2018

INTERNAL MONITORING POINT 103

IMP 103	
LONGITUDE	LATITUDE
-85.0911	35.2219

FLOW (MGD)	DISCHARGE SOURCE
1.047	Turbine Building Sump
0.002	Metal Cleaning Waste ponds
0.177	Neutral Waste Sump
0.004	Stormwater
1.230	TOTAL DISCHARGE

RECEIVING STREAM DISCHARGE ROUTE			
Wastewater from the Low Volume Waste Treatment Pond to the Diffuser Pond. Eventually discharges to TN River via Outfall 101			
STREAM LOW FLOW (CFS) *	7Q10	1Q10	30Q5
	N/A	N/A	N/A
(MGD)	N/A	N/A	N/A

STREAM USE CLASSIFICATIONS (WATER QUALITY)
N/A

Treatment: Sedimentation, neutralization

INTERNAL MONITORING POINT 107

IMP 107	
LONGITUDE	LATITUDE
-85.0928	35.223

FLOW (MGD)	DISCHARGE SOURCE
0.002	Unlined Metal Cleaning Waste Pond
	Lined Metal Cleaning Waste Pond
0.002	TOTAL DISCHARGE

RECEIVING STREAM DISCHARGE ROUTE			
Wastewater from the Metal Cleaning Waste Ponds to the Low Volume Waste Treatment Pond, which eventually discharges to TN River via Outfall 101.			
STREAM LOW FLOW (CFS) *	7Q10	1Q10	30Q5
	N/A	N/A	N/A
(MGD)	N/A	N/A	N/A

STREAM USE CLASSIFICATIONS (WATER QUALITY)
N/A

Treatment: Sedimentation, neutralization, chemical precipitation, chemical oxidation, flocculation
* Influent lines to the Metal Cleaning Waste Ponds are disconnected & capped. Only stormwater is discharged via IMP 107.

OUTFALL 110 (INACTIVE)

Outfall 110	
LONGITUDE	LATITUDE
-85.0877	35.2276

FLOW (MGD)	DISCHARGE SOURCE
0*	Essential Raw Cooling Water (ERCW)
0*	Cooling Towers
0*	Liquid Rad treatment system
0.058	Stormwater
0.058	**TOTAL DISCHARGE**

* Flow will only occur when plant is in Closed Mode.

RECEIVING STREAM DISCHARGE ROUTE

Wastewater from the Cold Water return channel to the Intake Forebay. Inactive for ~20 years; maintained in the event plant goes into Closed Mode.

STREAM LOW FLOW (CFS) *	7Q10	1Q10	30Q5
(MGD)	N/A	N/A	N/A
	N/A	N/A	N/A

STREAM USE CLASSIFICATIONS (WATER QUALITY)

N/A

OUTFALL 116

Outfall 116	
LONGITUDE	LATITUDE
-85.0902	35.2346

FLOW (MGD)	DISCHARGE SOURCE
0.006	Condenser cooling water Intake Trash Sluice
0.006	**TOTAL DISCHARGE**

RECEIVING STREAM DISCHARGE ROUTE

Discharge of backwash wastewater from the condenser cooling water intake sluice

STREAM LOW FLOW (CFS) *	7Q10	1Q10	30Q5
(MGD)	5400	3800	7200
	3490	2456	4653

STREAM USE CLASSIFICATIONS (WATER QUALITY)

FISH & LIFE	RECREATIO	IRRIGATION	LIVESTOCK & WILDLIFE	DOMESTIC WATER SUPPLY
X	X	X	X	X
INDUSTRIAL	NAVIGATION			
X	X			

OUTFALL 117

Outfall 117	
LONGITUDE	LATITUDE
-85.0858	35.2318

FLOW (MGD)	DISCHARGE SOURCE
0.014	Essential Raw Cooling Water screen and strainer backwash
0.014	**TOTAL DISCHARGE**

RECEIVING STREAM DISCHARGE ROUTE

Discharge of backwash wastewater from the Essential Raw Cooling Water screen and strainer

STREAM LOW FLOW (CFS) *	7Q10	1Q10	30Q5
(MGD)	5400	3800	7200
	3490	2456	4653

STREAM USE CLASSIFICATIONS (WATER QUALITY)

FISH & LIFE	RECREATIO	IRRIGATION	LIVESTOCK & WILDLIFE	DOMESTIC WATER SUPPLY
X	X	X	X	X
INDUSTRIAL	NAVIGATION			
X	X			

OUTFALL 118 (INACTIVE)

Outfall 118	
LONGITUDE	LATITUDE
-85.0891	35.23

FLOW (MGD)	DISCHARGE SOURCE
0.000	Dredge material and stormwater
	* Pond not currently in service
0.000	**TOTAL DISCHARGE**

Treatment: Sedimentation, filtration

RECEIVING STREAM DISCHARGE ROUTE

Discharges from the Dredge Settling Pond to the Intake Forebay; Pond is not in service at this time & this outfall is inactive. Only stormwater discharges.

STREAM LOW FLOW (CFS) *	7Q10	1Q10	30Q5
(MGD)	N/A	N/A	N/A
	N/A	N/A	N/A

STREAM USE CLASSIFICATIONS (WATER QUALITY)

N/A

APPENDIX 2
Applicable Effluent Limitations Guidelines

40 CFR PART 423 EFFLUENT LIMITATION GUIDELINES
STEAM ELECTRIC POWER GENERATING POINT SOURCE CATEGORY

Low Volume Waste Sources		
§ 423.12 (b)(3) - Effluent guidelines by best practicable control technology currently available (BPT)		
Effluent Characteristic	Average of daily values for 30 consecutive days (mg/L)	Maximum for any 1 day (mg/L)
TSS	30.0	100.0
Oil & grease	15.0	20.0
pH	6.0 - 9.0	6.0 - 9.0

Low Volume Waste Sources		
§ 423.13 - Effluent guidelines by best available technology economically achievable (BAT)		
Effluent Characteristic	Average of daily values for 30 consecutive days (mg/L)	Maximum for any 1 day (mg/L)
TSS	--	--
Oil & grease	--	--
pH	--	--

Note:
1 The quantity of pollutants discharged in low volume waste sources shall not exceed the quantity determined by multiplying the flow of low volume waste sources times the concentration listed above. At the permitting authority's discretion, the quantity of pollutant allowed to be discharged may be expressed as a concentration limitation instead of the mass-based limitation specified. Concentration limitations shall be those specified above.
2 There shall be no discharge of polychlorinated biphenyl compounds such as those commonly used for transformer fluid.

40 CFR PART 423 EFFLUENT LIMITATION GUIDELINES
STEAM ELECTRIC POWER GENERATING POINT SOURCE CATEGORY

Metal Cleaning Wastes		
§ 423.12 (b)(5) - Effluent guidelines by best practicable control technology currently available (BPT)		
Effluent Characteristic	Average of daily values for 30 consecutive days (mg/L)	Maximum for any 1 day (mg/L)
TSS	30.0	100.0
Oil & grease	15.0	20.0
Copper, total	1.0	1.0
Iron, total	1.0	1.0
pH	6.0 - 9.0	6.0 - 9.0

Metal Cleaning Wastes		
§ 423.13(e) - Effluent guidelines by best available technology economically achievable (BAT)		
Effluent Characteristic	Average of daily values for 30 consecutive days (mg/L)	Maximum for any 1 day (mg/L)
TSS	--	--
Oil & grease	--	--
Copper, total	1.0	1.0
Iron, total	1.0	1.0
pH	--	--

Note:
1 The quantity of pollutants discharged in low volume waste sources shall not exceed the quantity determined by multiplying the flow of low volume waste sources times the concentration listed above. At the permitting authority's discretion, the quantity of pollutant allowed to be discharged may be expressed as a concentration limitation instead of the mass-based limitation specified. Concentration limitations shall be those specified above.
2 There shall be no discharge of polychlorinated biphenyl compounds such as those commonly used for transformer fluid.
3 §423.12 refers to metal cleaning wastes; §423.13 refers to chemical metal cleaning wastes

APPENDIX 2
Applicable Effluent Limitations Guidelines, continued

40 CFR PART 423 EFFLUENT LIMITATION GUIDELINES
STEAM ELECTRIC POWER GENERATING POINT SOURCE CATEGORY

Once Through Cooling Water		
§ 423.12 (b)(6) - Effluent guidelines by best practicable control technology currently available (BPT)		
Effluent Characteristic	Average concentration (mg/L)	Maximum concentration (mg/L)
Free available chlorine	0.2 *	0.5 *

Once Through Cooling Water		
§ 423.13(b) - Effluent guidelines by best available technology economically achievable (BAT)		
Effluent Characteristic	Average concentration (mg/L)	Maximum concentration (mg/L)
Free available chlorine	0.2 *	0.5 *
Total residual chlorine	--	0.2 **

* § 423.12 is applicable to all plants. § 423.13 is applicable to plants with a total rated electric generating capacity of less than 25 megawatts only.

** Plants with a total rated electric generating capacity of 25 or more megawatts only. Total residual chlorine may not be discharged from any single generating unit for more than two hours per day unless the discharger demonstrates to the permitting authority that discharge for more than two hours is required for macroinvertebrate control. Simultaneous multi-unit chlorination is permitted.

Note:

1 The quantity of pollutants discharged shall not exceed the quantity determined by multiplying the flow of cooling water or once through cooling water times the concentration listed. At the permitting authority's discretion, the quantity of pollutant allowed to be discahrged may be expressed as a concentration limitation instead of the mass-based limitations specified. Concentration limitations shall be those specified above.

2 There shall be no discharge of polychlorinated biphenyl compounds such as those commonly used for transformer fluid.

3 Neither free available chlorine nor total residual chlorine may be discharged from any single generating unit for more than two hours in any one day and not more than one unit in any plant may discharge free available or total residual chlorine at any one time unless the utility can demonstrate to the permitting authority that the units in a particular location cannot operate at or below this level of chlorination.

APPENDIX 2A
Metals and Toxics Considerations

The following procedure is used to calculate the allowable instream concentrations for pass-through guidelines and permit limitations.

a. The most recent background conditions of the receiving stream segment are compiled. This information includes:

   * 1Q10 of receiving stream (2456 MGD, TVA)
   * Calcium hardness (77 mg/l, measured)
   * Total suspended solids (10 mg/l, default)
   * Background metals concentrations (measured or ½ water quality criteria)
   * Other dischargers impacting this segment (none)
   * Downstream water supplies, if applicable

b. The chronic water quality criteria are converted from total recoverable metal at lab conditions to dissolved lab conditions for the following metals: cadmium, copper, trivalent chromium, lead, nickel and zinc. Then translators are used to convert the dissolved lab conditions to total recoverable metal at ambient conditions.

c. The acute water quality criteria are converted from total recoverable metal at lab conditions to dissolved lab conditions for the following metals: cadmium, copper, trivalent chromium, lead, nickel, zinc and silver. Then translators are used to convert the dissolved lab conditions to total recoverable metal at ambient conditions for the following metals: cadmium, copper, lead, nickel and silver.

d. The resulting allowable trivalent and hexavalent chromium concentrations are compared with the effluent values characterized as total chromium on permit applications. If reported total chromium exceeds an allowable trivalent or hexavalent chromium value, then the calculated value will be applied in the permit for that form of chromium unless additional effluent characterization is received to demonstrate reasonable potential does not exist to violate the applicable state water quality criteria for chromium.

e. A standard mass balance equation determines the total allowable concentration (permit limit) for each pollutant. This equation also includes a percent stream allocation of no more than 90%.

   The following formulas are used to evaluate water quality protection:

$$Cm = \frac{QsCs + QwCw}{Qs + Qw}$$

where:

Cm = resulting in-stream concentration after mixing
Cw = concentration of pollutant in wastewater
Cs = stream background concentration
Qw = wastewater flow
Qs = stream low flow

to protect water quality:

$$Cw \leq \frac{(S_A)\,[Cm\,(Qs + Qw) - QsCs]}{Qw}$$

where (S_A) is the percent "Stream Allocation".

Calculations for this permit have been done using a standardized spreadsheet, titled "Water Quality Based Effluent Calculations." Division policy dictates the following procedures in establishing these permit limits:

1. The critical low flow values are determined using USGS data:

   Fish and Aquatic Life Protection
   7Q10 - Low flow under natural conditions
   1Q10 - Regulated low flow conditions

   Other than Fish and Aquatic Life Protection
   30Q2 - Low flow under natural conditions

2. Fish & Aquatic Life water quality criteria for certain Metals are developed through application of hardness dependent equations. These criteria are combined with dissolved fraction methodologies in order to formulate the final effluent concentrations.

3. For criteria that are hardness dependent, chronic and acute concentrations are based on a Hardness of 25 mg/L and Total Suspended Solids (TSS) of 10 mg/L unless STORET or Water Supply intake data substantiate a different value. Minimum and maximum limits on the hardness value used for water quality calculations are 25 mg/L and 400 mg/L respectively. The minimum limit on the TSS value used for water quality calculations is 10 mg/L.

4. Background concentrations are determined from the division database, results of sampling obtained from the permittee, and/or obtained from nearby stream sampling data. If this background data is not sufficient, one-half of the chronic "In-stream Allowable" water quality criteria for fish and aquatic life is used. If the measured background concentration is greater than the chronic "In-stream Allowable" water quality criteria, then the measured background concentration is used in lieu of the chronic "In-stream Allowable" water quality criteria for the purpose of calculating the appropriate effluent limitation (Cw). Under these circumstances, and in the event the "stream allocation" is less than 100%, the calculated chronic effluent limitation for fish and aquatic life should be equal to the chronic "In-stream Allowable" water quality criteria. These guidelines should be strictly followed where the

industrial source water is not the receiving stream. Where the industrial source water is the receiving stream, and the measured background concentration is greater than the chronic "In-stream Allowable" water quality criteria, consideration may be given as to the degree to which the permittee should be required to meet the requirements of the water quality criteria in view of the nature and characteristics of the receiving stream.

The spreadsheet has fifteen (15) data columns, all of which may not be applicable to any particular characteristic constituent of the discharge. A description of each column is as follows:

Column 1: The "Stream Background" concentrations of the effluent characteristics.

Column 2: The "Chronic" Fish and Aquatic Life Water Quality criteria. For cadmium, copper, trivalent chromium, lead, nickel, and zinc, this value represents the criteria for the dissolved form at laboratory conditions. The Criteria Continuous Concentration (CCC) is calculated using the equation:

$$CCC = (\exp \{ m_C [\ln (\text{stream hardness})] + b_C \}) (CCF)$$

CCF = Chronic Conversion Factor

This equation and the appropriate coefficients for each metal are from Tennessee Rule 0400-40-03-.03 and the EPA guidance contained *in The Metals Translator: Guidance For Calculating A Total Recoverable Permit Limit From a Dissolved Criterion* (EPA 823-B-96-007, June 1996). Values for other metals are in the total form and are not hardness dependent; no chronic criterion exists for silver. Published criteria are used for non-metal parameters.

Column 3: The "Acute" Fish and Aquatic Life Water Quality criteria. For cadmium, copper, trivalent chromium, lead, nickel, silver, and zinc, this value represents the criteria for the dissolved form at laboratory conditions. The Criteria Maximum Concentration (CMC) is calculated using the equation:

$$CMC = (\exp \{ m_A [\ln (\text{stream hardness})] + b_A \}) (ACF)$$

ACF = Acute Conversion Factor

This equation and the appropriate coefficients for each metal are from Tennessee Rule 0400-40-03-.03 and the EPA guidance contained in *The Metals Translator: Guidance For Calculating A Total Recoverable Permit Limit From a Dissolved Criterion* (EPA 823-B-96-007, June 1996). Values for other metals are in the total form and are not hardness dependent. Published criteria are used for non-metal parameters.

Column 4: The "Fraction Dissolved" converts the value for dissolved metal at laboratory conditions (columns 2 & 3) to total recoverable metal at in-stream ambient conditions (columns 5 & 6). This factor is calculated using the linear partition coefficients found in *The Metals Translator: Guidance For Calculating A Total*

Recoverable Permit Limit From a Dissolved Criterion (EPA 823-B-96-007, June 1996) and the equation:

$$\frac{C_{diss}}{C_{total}} = \frac{1}{1 + \{ [K_{po}] [ss^{(1+a)}] [10^{-6}] \}}$$

ss = in-stream suspended solids concentration [mg/l]

Linear partition coefficients for streams are used for unregulated (7Q10) receiving waters, and linear partition coefficients for lakes are used for regulated (1Q10) receiving waters. For those parameters not in the dissolved form in columns 2 & 3 (and all non-metal parameters), a Translator of 1 is used.

Column 5: The "Chronic" Fish and Aquatic Life Water Quality criteria at in-stream ambient conditions. This criteria is calculated by dividing the value in column 2 by the value in column 4.

Column 6: The "Acute" Fish and Aquatic Life Water Quality criteria at in-stream ambient conditions. This criteria is calculated by dividing the value in column 3 by the value in column 4.

Column 7: The "Chronic" Calculated Effluent Concentration for the protection of fish and aquatic life. This is the chronic limit.

Column 8: The "Acute" Calculated Effluent Concentration for the protection of fish and aquatic life. This is the acute limit.

Column 9: The In-Stream Water Quality criteria for the protection of Human Health associated with the stream use classification of Organism Consumption (Recreation).

Column 10: The In-Stream Water Quality criteria for the protection of Human Health associated with the stream use classification of Water and Organism Consumption. These criteria are only to be applied when the stream use classification for the receiving stream includes both “Recreation” and “Domestic Water Supply.”

Column 11: The In-Stream Water Quality criteria for the protection of Human Health associated with the stream use classification of Domestic Water Supply.

Column 12: The Calculated Effluent Concentration associated with Organism Consumption.

Column 13: The Calculated Effluent Concentration associated with Water and Organism Consumption.

Column 14: The Calculated Effluent Concentration associated with Domestic Water Supply.

The calculated chronic water quality effluent concentrations from Column 7 should be compared, individually, to the values calculated in Columns 12, 13, and 14 in order to determine the most stringent chronic permit limitations. The calculated acute water quality effluent concentrations from Column 8 should then be compared, individually, to values equal to two (2) times the values presented in Columns 12, 13, and 14 in order to determine the most stringent acute permit limitations. These water quality-based limits should then be compared to any technology based (CFR or Tennessee "Rules") effluent limitations, and/or any previous permit limitations, for final determination of the permit limits.

Note: TVA has demonstrated that priority pollutants, including chromium and zinc, will not be discharged in cooling tower blowdown in amounts that are detectable by analytical methods in 40 CFR Part 136. Therefore monitoring for priority pollutants is not required.

2019 WQC

WATER QUALITY CALCULATIONS FOR METALS AND OTHER TOXIC SUBSTANCES
WATER QUALITY BASED EFFLUENT CALCULATIONS
OUTFALL 101

FACILITY:	PERMIT #:	DATE:	CALC BY:
TVA- Sequoyah Nuclear Plant	TN0026450	3/31/2020	SMT

regulated stream worksheet (1Q10)

Stream (1Q10) [MGD]	Stream (30Q5) [MGD]	Waste Flow [MGD]	Ttl. Susp. Solids [mg/l]	Hardness (as CaCO3) [mg/l]	Margin of Safety [%]
2,456	4,653	1692	10	77	50

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
	Stream	Fish/Aqua. Life (F & AL) WQC			F & AL- instream allowable		Calc. Effluent Concentration		Human Health Water Quality Criteria *						
	Bckgrnd.	lab conditions		Fraction	ambient conditions (Tot)		based on F & AL		In-Stream Criteria			Calc. Effluent Concentration **			Reported
	Conc.	Chronic	Acute	Dissolved	Chronic	Acute	Chronic	Acute	Organisms	Water/Organisms	DWS	Organisms	Water/Organisms	DWS	effluent
PARAMETER	[ug/l]	[ug/l]	[ug/l]	[Fraction]	[ug/l]	[ug/l]	[ug/l]	[ug/l]	[ug/l]	[ug/l]	[ug/l]	[ug/l]	[ug/l]	[ug/l]	[ug/l]
Copper (a,b)	0.804	7.163	10.506	0.218	32.864	48.199	**39.70**	**58.50**							**<3**
Chromium III	1.071	59.833	459.971	0.078	763.227	5867.393	**934.76**	**7191.29**							**<1**
Chromium VI	1.071	11.000	16.000	1.000	11.000	16.000	**12.71**	**18.83**							**<1**
Chromium, Total	1.071										100.0			186.03	**<1**
Nickel (a,b)	0.780	41.690	375.349	0.206	202.614	1824.215	**247.79**	**2235.50**	4600.0	610.0	100.0	**8623.93**	1142.68	186.43	**<3**
Cadmium (a,b)	0.295	0.590	1.411	0.193	3.061	7.317	**3.54**	**8.75**			5.0			8.97	**<1**
Lead (a,b)	0.384	1.891	48.532	0.146	12.959	332.561	**15.61**	**407.36**			5.0			8.85	**<3.3**
Mercury (T) (c)	0.036	0.770	1.400	1.000	0.770	1.400	**0.92**	**1.69**	0.051	0.05	2.0	**0.05**	0.04	3.70	**0.0011**
Silver (a,b,e)	1.026		2.052	1.000		2.052		**1.77**							**<1**
Zinc (a,b)	3.618	94.671	93.903	0.125	757.137	750.993	**925.45**	**917.92**	26000.0	7400.0		**48745.03**	13870.03		**<7.64**
Cyanide (d)	2.600	5.200	22.000	1.000	5.200	22.000	**4.49**	**25.08**	140.0	140.0	200.0	**258.93**	258.93	371.43	**<5**
Chlorine (T. Res.)	0.000	11.000	19.000	1.000	11.000	19.000	**26.97**	**46.58**							**<50**

a Denotes metals for which Fish & Aquatic Life Criteria are expressed as a function of total hardness.
b The criteria for this metal is in the dissolved form at lab conditions. The calculated effluent concentration is in the total recoverable form.
c The chronic criteria for mercury is not converted to dissolved, since it is based on fish tissue data rather than toxicity.
d The criteria for this parameter is in the total form.
e Silver limit is daily max if column 8 is most stringent.
f When columns 7 or 8 result in a negative number, use results from columns 5 or 6, respectively.
g When columns 12, 13 or 14 result in a negative number, use results from columns 9, 10 or 11, respectively, as applicable.

* Domestic supply included in river use so pick from columns 7,8,12,13,14
** Water Quality criteria for stream use classifications other than Fish & Aquatic Life are based on the 30Q5 flow.

APPENDIX 3
Previous Permit Limits

Feature Description : External Outfall, Number : 101
Monitoring : Effluent Gross, Season : All Year

Parameter	Qualifier	Limit	Unit	Sample Type	Frequency	Statistical base
Chlorine, total residual	<=	0.1	mg/L	Calculated[1]	5/week	Daily Maximum
Chlorine, total residual	<=	0.1	mg/L	Calculated	5/week	Monthly Average
Flow, in conduit or thru treatment plant	Report	-	Mgal/d	Recorder	Continuous	Daily Maximum
Flow, in conduit or thru treatment plant	Report	-	Mgal/d	Calculated	Daily	Monthly Average
Temperature, water deg. centigrade	Report	-	deg C	Recorder	Continuous	Daily Maximum
IC25 Static Renewal 7 Day Chronic Ceriodaphnia	>=	42.8	%	Composite	Monthly	Minimum
IC25 Static Renewal 7 Day Chronic Pimephales	>=	42.8	%	Composite	Monthly	Minimum

Monitoring : Effluent Gross, Season : Winter

Parameter	Qualifier	Limit	Unit	Sample Type	Frequency	Statistical base
Temp. Diff. between samp. & upstrm deg. C	<=	5.0	deg C	Calculated	Continuous	Daily Maximum

Monitoring : Instream Monitoring, Season : All Year

Parameter	Qualifier	Limit	Unit	Sample Type	Frequency	Statistical base
Temperature rate of change deg. C/hr	<=	2.0	deg C/hr	Calculated	Continuous	Daily Maximum
Temperature, water deg. centigrade	<=	30.5	deg C	Calculated	Continuous	Daily Maximum

Monitoring : Instream Monitoring, Season : Summer

Parameter	Qualifier	Limit	Unit	Sample Type	Frequency	Statistical base
Temp. Diff. between samp. & upstrm deg. C	<=	3.0	deg C	Calculated	Continuous	Daily Maximum

Description : Internal Outfall, Number : 103, Monitoring : Effluent Gross, Season : All Year

Parameter	Qualifier	Limit	Units	Sample Type	Frequency	Statistical base
Flow, in conduit or thru treatment plant	Report	-	Mgal/d	Instantaneous	Weekly	Daily Maximum
Flow, in conduit or thru treatment plant	Report	-	Mgal/d	Instantaneous	Weekly	Monthly Average
Oil & Grease	<=	20.0	mg/L	Grab	Monthly	Daily Maximum
Oil & Grease	<=	15.0	mg/L	Grab	Monthly	Monthly Average
Solids, total suspended	<=	100.0	mg/L	Grab	Monthly	Daily Maximum
Solids, total suspended	<=	30.0	mg/L	Grab	Monthly	Monthly Average
pH	<=	9.0	SU	Grab	Weekly	Maximum
pH	>=	6.0	SU	Grab	Weekly	Minimum

APPENDIX 3
Previous Permit Limits, continued

3. Internal Monitoring Point (formerly Outfall) 107

TVA Sequoyah Nuclear Plant is authorized to discharge rain water from the Metal Cleaning Waste Treatment Ponds to the Low Volume Waste Treatment Pond, (IMP103), the Yard Drainage Pond, or the Condenser Cooling Water Channel, which ultimately discharges into the Diffuser Pond (Outfall101). **The permittee is not required to monitor discharge through IMP 107 for routine decanting of accumulated stormwater**.

During the process of closing the Metal Cleaning Waste Treatment Ponds, all monitoring requirements at IMP107 shall be waived to facilitate complete dewatering. During the dewatering process, samples shall be collected at Outfall 101 for analysis of TSS, O&G, copper, iron, and flow to ensure the water quality of the receiving stream is protected. Due to the additional residence time within the Diffuser Pond, these parameters shall be monitored daily at Outfall 101 from the beginning of the dewatering event(s) through three days following termination of dewatering. All monitoring results shall be reported in the DMR for Outfall 101.

4. Outfall 110

Outfall 110 which has been inactive for 18 years remains in the event the plant goes into closed mode. TVA - Sequoyah Nuclear Plant is authorized to discharge backwash wastewater through Outfall 110, to the cooling channel and intake forebay. Note that Outfall 110 is not normally used in day-to-day operations of the plant and effluent limitations and monitoring requirements are applicable only during periods of closed-mode operation. However, should conditions apply that require its use as the main discharge point in place of Outfall 101 the same requirements of Outfall 101 shall apply to Outfall 110.

5. Outfall 116 and 117

TVA - Sequoyah Nuclear Plant is authorized to discharge backwash wastewater through Outfall 116 to the Tennessee River at mile 485.2 and through Outfall 117 to the Tennessee River at mile 484.85. **There are no limits or monitoring requirements for these discharges.**

Description : External Outfall, Number : 118, Monitoring : Effluent Gross, Season : All Year

Parameter	Qualifier	Limit	Unit	Sample Type	Frequency	Statistical base
Flow, in conduit or thru treatment plant	Report	-	Mgal/d	Estimate	Once Per Batch	Daily Maximum
Flow, in conduit or thru treatment plant	Report	-	Mgal/d	Estimate	Once Per Batch	Monthly Average
Oxygen, dissolved (DO)	>=	2.0	mg/L	Grab	Twice Every Week	Minimum
Solids, settleable	<=	1.0	mL/L	Grab	Monthly	Daily Maximum
Solids, total suspended	<=	100.0	mg/L	Grab	Twice Every Week	Daily Maximum

APPENDIX 4
DMR Summary

Outfall 101 Effluent Gross	Chlorine, total residual		Effluent Flow		IC25 Chronic Ceriodaphnia	IC25 Chronic Pimephales	Temp. Difference, Effluent & Upstream	Temperature rate of change	Effluent Temperature	Instream Temperature
	Monthly Avg. (mg/L)	Daily Max. (mg/L)	Daily Max. (MGD)	Monthly Avg. (MGD)	Monthly Min. (%)	Monthly Min. (%)	Daily Max. (°C)	Daily Max. (°C/hr)	Daily Max. (°C)	Daily Max. (°C)
01/31/2020	0.022	0.031	1766	1738			1.4	0.1	25.7	11.9
12/31/2019	0.015	0.029	1913	1760			1.6	0.1	27.1	13.5
11/30/2019	0.021	0.039	1773	1623			1.3	0.1	31.8	20.9
10/31/2019	0.019	0.035	2034	1370			2.6	0.4	39.5	29.6
09/30/2019	0.023	0.038	2213	1892			2.5	0.4	40.6	29.8
08/31/2019	0.018	0.03	1751	1736	>100	>100	2	0.4	42.7	30.1
07/30/2019	0.021	0.032	1744	1729			2.2	0.1	42.3	29.9
06/30/2019	0.016	0.026	1744	1734			2.6	0.3	40.3	28.4
05/31/2019	0.019	0.034	1742	1724	>100	>100	1.6	0.2	37.8	26.9
04/30/2019	0.014	0.023	1765	1696			2.6	0.3	34.1	20.1
03/31/2019	0.018	0.025	1753	1716			3.3	0.2	27.6	14.9
02/28/2019	0.021	0.032	1754	1715			4.3	1.4	25	13.4
01/31/2019	0.02	0.033	1723	1709			2.7	0.8	25.4	11.7
12/31/2018	0.016	0.023	1732	1705			1.4	0.1	24.3	11.6
11/30/2018	0.01	0.017	1728	1102			1	0.1	30.7	18.8
10/31/2018	0.016	0.028	2227	1806	> 100	> 100	2.5	0.4	39.3	27.1
09/30/2018	0.014	0.024	1751	1736			2.4	0.4	42.4	30.2
08/31/2018	0.016	0.026	1832	1740			2.6	0.3	42.3	29.5
07/31/2018	0.019	0.038	1750	1737			2.7	0.3	42.2	30.1
06/30/2018	0.016	0.035	1863	1805			2.6	0.2	39.9	28
05/31/2018	0.011	0.023	1848	1815	> 100	> 100	2.4	0.2	38.8	25.3
04/30/2018	0.021	0.04	1840	1305			2.8	0.4	29.6	17.4
03/31/2018	0.026	0.034	1672	1506			2.8	0.2	28.1	14.9
02/28/2018	0.014	0.03	1697	1482			3.7	0.2	28.6	12.7
01/31/2018	0.011	0.033	1738	1660			3.6	1.1	22.6	10.2
12/31/2017	0.017	0.029	1724	1662			3.4	0.3	27.8	16.2
11/30/2017	0.02	0.029	2139	1765			2.2	0.3	33	20.3
10/31/2017	0.02	0.038	1798	1729			2.5	0.4	37.2	26.2
09/30/2017	0.022	0.038	1806	1793			2.3	1.3	37.9	27.8
08/31/2017	0.017	0.043	1817	1799			2.3	0.3	42.1	30.1
07/31/2017	0.017	0.033	1953	1897	> 100	> 100	2.3	0.3	41.7	30.3
06/30/2017	0.017	0.027	2154	1878			2.4	0.8	39.1	27.3
05/31/2017	0.018	0.036	1908	1433	> 100	> 100	1.6	0.2	35.6	23.4
04/30/2017	0.017	0.032	1894	1839			2.6	0.2	33.7	22.1
03/31/2017	0.017	0.036	1890	1594			3.7	1.4	31.1	18.6
02/28/2017	0.024	0.035	1629	1598			3.8	0.3	28.7	15.9
01/31/2017	0.02	0.028	1765	1640			3.4	0.3	27.1	14.2
12/31/2016	0.026	0.033	1842	1431			2.3	1.5	27.9	16
11/30/2016	0.026	0.034	1805	1714			3.7	0.3	35.8	24.2
10/31/2016	0.025	0.044	1809	1800			2.4	0.3	35.3	26.9
09/30/2016	0.019	0.038	1817	1807			2.1	0.1	37.4	29.4
08/31/2016	0.022	0.038	1808	1795	> 100	> 100	2.1	0.1	37.6	30.3
07/31/2016	0.021	0.031	1831	1801	> 100	> 100	2.4	0.1	41.2	30.5
06/30/2016	0.02	0.034	1837	1811			2.1	0.2	40.8	29.8
05/31/2016	0.019	0.036	1814	1791	> 100	> 100	2.4	0.4	35.3	27.6
04/30/2016	0.019	0.028	1794	1734			2.8	0.4	32.4	23.9
03/31/2016	0.016	0.022	1777	1761			3.7	0.3	29.4	17.8
02/29/2016	0.025	0.043	1771	1669			1.2	0.2	24.1	9.7
01/31/2016	0.022	0.037	1739	1593			1.4	0.1	20.6	13.8
12/31/2015	0.02	0.026	1774	1512			0.8	0.1	28	14.6
11/30/2015	0.021	0.029	1800	1360			2.4	0.2	32.7	20.9
10/31/2015	0.02	0.041	1842	1803	> 100	> 100	2.7	0.4	38	26.5
09/30/2015	0.018	0.038	1799				2.5	0.3	41.5	29.4
08/31/2015	0.018	0.028	1800		> 100	> 100	2.4	0.4	41.9	29.6
07/31/2015	0.021	0.035	1807				2.2	0.2	42.2	29.2
06/30/2015	0.019	0.036	1779				1.8	0.1	41.6	29.9
05/31/2015	0.026	0.033	1752				2	0	35.8	25.5
04/30/2015	0.021	0.035	1753				2	0	30.7	18.9
03/31/2015	0.02	0.033	1728				2	0	25.5	14.1
02/28/2015	0.016	0.043	1568		100	100	4	0	23.6	10.2
01/31/2015	0.031	0.046	1718				3	0	23.7	10.1
12/31/2014	0.022	0.038	1723				3	0	26.3	12.8
11/30/2014	0.021	0.037	1744				3	0	32.2	19.4
10/31/2014	0.024	0.044	1763				2	0	39.4	26.2
09/30/2014	0.017	0.047	1772				3	0	41.8	29.8
08/31/2014	0.016	0.027	1766		> 100	> 100	3	1	42.8	29.9
07/31/2014	0.016	0.026	1757				2	0	42.2	29.8
06/30/2014	0.017	0.026	1749				2	0	39.9	28.9
05/31/2014	0.016	0.026	1721				2	0	34.9	25.8
04/30/2014	0.011	0.02	1729				3	0	31.6	20.9
03/31/2014	0.021	0.036	1706				4	0	27.6	15.1
Min:	**0.010**	**0.017**	**1568**	**1102**			**0.8**	**0.0**	**20.6**	**9.7**
Max:	**0.031**	**0.047**	**2227**	**1897**			**4.3**	**1.5**	**42.8**	**30.5**
Average:	**0.019**	**0.033**	**1803**	**1684**			**2.5**	**0.3**	**34.2**	**22.3**
Permit limit (summer/winter):	**0.100**	**0.100**	**--**	**--**	**≥42.8%**	**≥42.8%**	**3 / 5**	**2.0**	**--**	**30.5**

NODI 9 = Monitoring not Required **NODI C = No Discharge**

APPENDIX 4
DMR Summary, continued

Internal Monitoring Point 103	Flow, thru treatment plant		Oil & Grease		pH		TSS	
	Monthly Avg. (MGD)	Daily Max. (MGD)	Monthly Avg. (mg/L)	Daily max. (mg/L)	Minimum (SU)	Maximum (SU)	Monthly Avg. (mg/L)	Daily Max. (mg/L)
01/31/2020	1.601	1.696	< 5	< 5	6.8	8.1	4.7	4.7
12/31/2019	1.523	1.66	< 4.8	< 4.8	6.9	7.8	5	5
11/30/2019	1.69	1.766	< 5	< 5	6.9	8.25	11.1	11.1
10/31/2019	1.756	2	< 5	< 5	6.9	7.5	17.3	18
09/30/2019	1.052	1.101	< 4.9	< 4.9	6.8	7.4	2.9	2.9
08/31/2019	1.102	1.206	< 5	< 5	6.9	8.6	8.2	8.2
07/31/2019	1.33	1.527	< 5	< 5	6.9	8.5	5.6	5.6
06/30/2019	1.234	1.566	< 4.8	< 4.8	7.3	7.6	8.6	8.6
05/31/2019	0.951	1.044	< 4.8	< 4.8	6.5	7.6	36	3.6
04/30/2019	1.308	1.487	< 4.8	< 4.8	6.2	7.6	3.8	3.8
03/31/2019	1.66	1.714	< 4.8	< 4.8	7	8.7	12	12
02/28/2019	1.322	1.642	< 4.8	< 4.8	6.3	7.9	8.6	8.6
01/31/2019	1.515	1.632	< 4.8	< 4.8	6.6	7.2	6.6	6.6
12/31/2018	1.641	1.696	< 5	< 5	6.5	8.1	9.7	9.7
11/30/2018	2.19	2.354	< 4.8	< 4.8	6.9	8	17.8	17.8
10/31/2018	1.396	1.547	< 5	< 5	6.6	7.7	5.85	5.9
09/30/2018	1.13	1.167	< 4.8	< 4.8	7.1	7.3	7.8	7.8
08/31/2018	0.627	0.953	< 4.8	< 4.8	6.5	7	9.6	9.6
07/31/2018	1.057	1.187	< 5	< 5	6.7	6.7	8	8
06/30/2018	1.022	1.114	< 5	< 5	6.5	6.7	2.5	2.5
05/31/2018	1.115	1.302	< 5	< 5	6.5	6.9	3.1	3.1
04/30/2018	1.864	2.014	< 5	< 5	6.8	7.2	2.5	2.5
03/31/2018	1.726	1.825	< 4.8	< 4.8	6.4	8.2	4	4
02/28/2018	1.582	1.731	< 5	< 5	7.1	7.3	3.6	3.6
01/31/2018	2.106	2.344	< 5	< 5	7	8.2	5	5
12/31/2017	1.796	1.833	< 5	< 5	6.8	7.6	5	5
11/30/2017	1.577	1.74	< 5	< 5	6.6	8.1	3.2	3.2
10/31/2017	1.209	1.273	< 5	< 5	7.2	7.2	4.4	5
09/30/2017	0.893	1	< 5	< 5	7	8.8	11	11
08/31/2017	0.779	0.887	< 5	< 5	7	7.4	8	8
07/31/2017	0.782	0.87	< 5	< 5	7	7.2	5	5
06/30/2017	1.047	1.387	< 5	< 5	7.1	8.6	5.4	5.4
05/31/2017	1.679	1.757	< 5	< 5	7.2	7.5	4.5	4.5
04/30/2017	1.187	1.214	< 5	< 5	7	7.8	4.7	4.7
03/31/2017	1.317	1.364	< 5	< 5	7	7.3	6.8	6.8
02/28/2017	1.291	1.316	< 5	< 5	7	7.4	2.5	2.5
01/31/2017	1.263	1.307	< 5	< 5	7.8	8.3	2.5	2.5
12/31/2016	1.235	1.351	< 5	< 5	7.8	8.1	5	5
11/30/2016	1.299	1.385	< 5	< 5	7.8	8.7	2.5	2.5
10/31/2016	1.311	1.354	13.4	13.4	7.8	8.2		
09/30/2016	1.28	1.306			7.7	8.5	5.9	5.9
08/31/2016	1.3	1.342			7.2	8.4	12.2	12.2
07/31/2016	1.304	1.323			6.8	8.9	17.6	17.6
06/30/2016	1.276	1.34			7.4	8.3		
05/31/2016								
04/30/2016	0.006	0.006			8.6	8.6		
03/31/2016	1.099	1.274			7.4	7.9	13.8	13.8
02/29/2016	1.065	1.163			7.7	8.3	8.4	8.4
01/31/2016	1.06	1.232			7.8	8.8	8	8
12/31/2015	1.144	1.249			7	8.5	6.6	6.6
11/30/2015	0.972	1.151			7	8.7	15.8	15.8
10/31/2015	1.304	1.311			7.3	7.6		
09/30/2015	1.265	1.336			7.5	8.6		
08/31/2015	1.254	1.288	< 5	< 5	7.4	7.9	8	8
07/31/2015	1.537	4.156			7.1	7.6	7.3	7.5
06/30/2015	0.932	1.495			7.2	8.9	8.4	10.4
05/31/2015	1.04	1.237			7	8	22	32
04/30/2015	0.876	1.414			7	9	19	24
03/31/2015	1.055	1.34			6	8	10	13
02/28/2015	1.158	1.307			7	8	9	14
01/31/2015	1.196	1.326			7	9	17	20
12/31/2014	1.22	1.402			7	9	20	20
11/30/2014	0.899	1.298			7	9	14	16
10/31/2014	0.939	1.419			6	8	19	24
09/30/2014	0.91	1.05			7	8	7	7
08/31/2014	0.901	2.627		12	6	8		5
07/31/2014	1.203	2.143			7	8	4	5
06/30/2014	1.072	1.341	< 5	< 5	7	9	6	7
05/31/2014	1.02	1.938			7	8	8	10
04/30/2014	0.951	1.199			6	8	11	11
03/31/2014	0.966	1.052			7	8	13	13
Min:	**0.006**	**0.006**	**<4.8**	**12.0**	**6.0**	**6.7**	**2.5**	**2.5**
Max:	**2.190**	**4.156**	**13.4**	**13.4**	**8.6**	**9.0**	**36.0**	**32.0**
Average:	**1.234**	**1.463**	**13.4**	**12.7**	**7.0**	**8.0**	**8.9**	**9.0**
Permit limit:	**--**	**--**	**15.0**	**20.0**	**6.0**	**9.0**	**30.0**	**100.0**
Ratio of long term average to limit			**34%**	**25%**			**30%**	**9%**

NODI B - Below Detection Level **NODI C - No Discharge**

APPENDIX 5
NEW PERMIT LIMITS AND MONITORING REQUIREMENTS

Outfall 101 – All Year (and Outfall 110 in closed mode)

Code	Parameter	Qualifier	Value	Unit	Type	Frequency	Statistical Base
00010	Temperature, water ° C	Report	-	° C	Calculated	Continuous	Daily Maximum
39516	Polychlorinated biphenyls (PCBs)	<=	0	ppm	Grab	1/ Permit Cycle	Daily Maximum
50050	Flow	Report	-	MGD	Calculated	Daily	Monthly Average
50050	Flow	Report	-	MGD	Recorder	Continuous	Daily Maximum
50060	Chlorine, total residual (TRC)	<=	0.039	mg/L	Grab	Five Per Week	Daily Maximum
50060	Chlorine, total residual (TRC)	<=	0.019	mg/L	Grab	Five Per Week	Monthly Average
TRP3B	IC25 Static Renewal 7 Day Chronic Ceriodaphnia	>=	69	%	Grab	Monthly	Minimum
TRP6C	IC25 Static Renewal 7 Day Chronic Pimephales promelas	>=	69	%	Grab	Monthly	Minimum

Outfall 101 – Summer

Code	Parameter	Qualifier	Value	Unit	Sample Type	Frequency	Statistical Base
00016	Temp. diff., effluent & upstream ° C	<=	3	° C	Calculated	Continuous	Daily Maximum

Outfall 101 - Winter

Code	Parameter	Qualifier	Value	Unit	Sample Type	Frequency	Statistical Base
00016	Temp. diff., effluent & upstream ° C	<=	5	° C	Calculated	Continuous	Daily Maximum

Instream Monitoring – All Year

Code	Parameter	Qualifier	Value	Unit	Sample Type	Frequency	Statistical Base
00010	Temperature, water ° C	<=	30.5	° C	Calculated	Continuous	Daily Maximum
82234	Temperature rate of change ° C/hr	<=	2	° C/hr	Calculated	Continuous	Daily Maximum

Internal Monitoring Point 103*

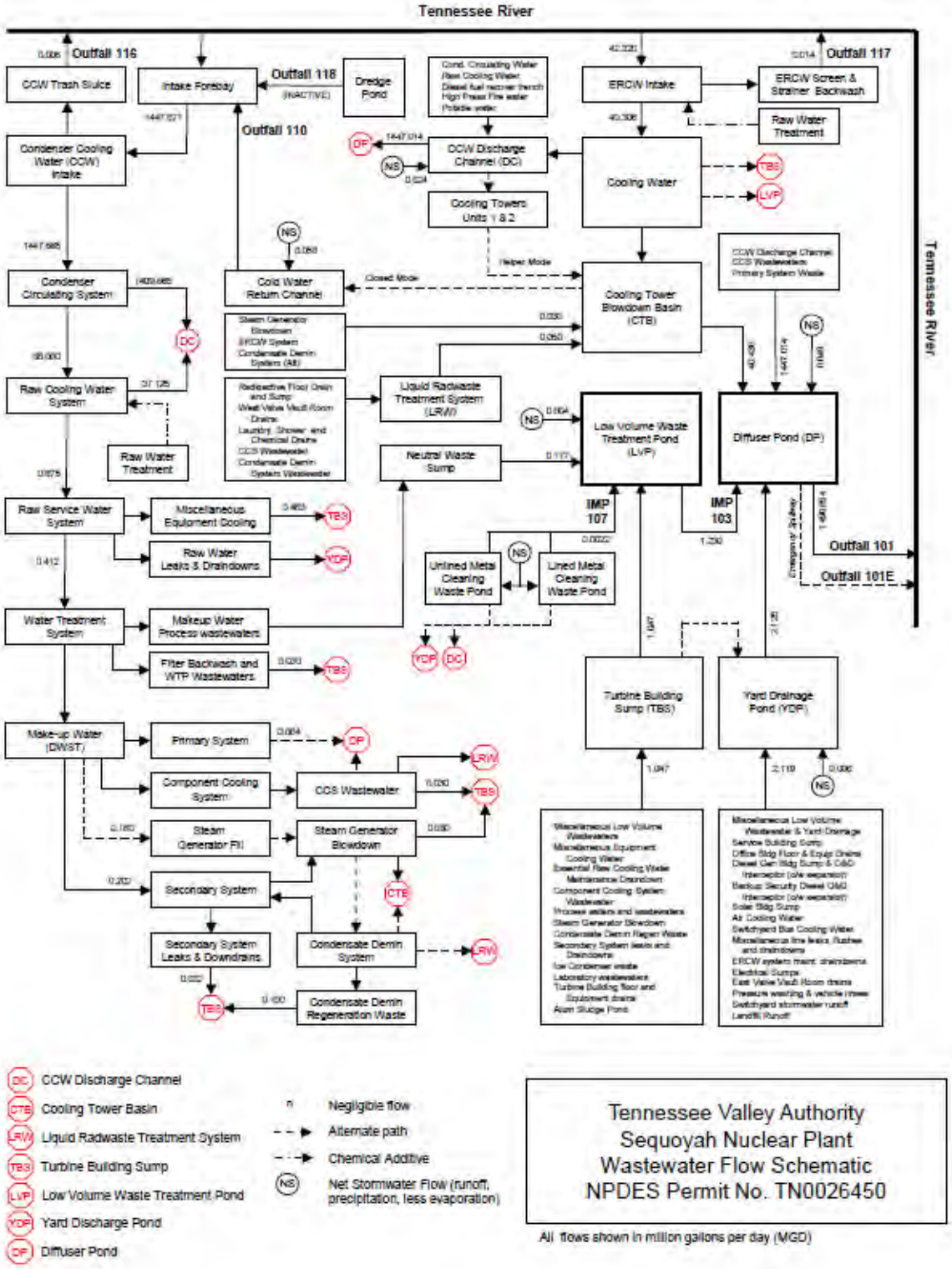
Code	Parameter	Qualifier	Value	Unit	Sample Type	Frequency	Statistical Base
00400	pH	>=	6	SU	Grab	Monthly	Minimum
00400	pH	<=	9	SU	Grab	Monthly	Maximum
00530	Total Suspended Solids (TSS)	<=	100	mg/L	Grab	Monthly	Daily Maximum
00530	Total Suspended Solids (TSS)	<=	30	mg/L	Grab	Monthly	Monthly Average
00556	Oil & Grease	<=	20	mg/L	Grab	Monthly	Daily Maximum
00556	Oil & Grease	<=	15	mg/L	Grab	Monthly	Monthly Average
50050	Flow	Report	-	MGD	Totalizer	Monthly	Daily Maximum
50050	Flow	Report	-	MGD	Totalizer	Monthly	Monthly Average

Internal Monitoring Point 107							
Code	Parameter	Qualifier	Value	Unit	Sample Type	Frequency	Statistical Base
00400	pH	>=	6.0	SU	Grab	Daily	Minimum
00400	pH	<=	9.0	SU	Grab	Daily	Maximum
00530	Total Suspended Solids (TSS)	<=	100	mg/L	Composite	Daily	Daily Maximum
00530	Total Suspended Solids (TSS)	<=	30	mg/L	Composite	Daily	Monthly Average
00556	Oil & Grease	<=	20	mg/L	Grab	Daily	Daily Maximum
00556	Oil & Grease	<=	15	mg/L	Grab	Daily	Monthly Average
01042	Copper, total (as Cu)	<=	1.0	mg/L	Composite	Daily	Daily Maximum
01042	Copper, total (as Cu)	<=	1.0	mg/L	Composite	Daily	Monthly Average
01045	Iron, total (as Fe)	<=	1.0	mg/L	Composite	Daily	Daily Maximum
01045	Iron, total (as Fe)	<=	1.0	mg/L	Composite	Daily	Monthly Average

Internal Outfall 118							
Code	Parameter	Qualifier	Value	Unit	Sample Type	Frequency	Statistical Base
00300	Oxygen, dissolved (DO)	>=	2.0	mg/L	Grab	Two Per Week	Minimum
00530	Total Suspended Solids (TSS)	<=	100	mg/L	Grab	Two Per Week	Daily Maximum
00545	Settleable Solids	<=	1.0	mL/L	Grab	Monthly	Daily Maximum
50050	Flow	Report	-	MGD	Estimate	Once Per Batch	Daily Maximum
50050	Flow	Report	-	MGD	Estimate	Once Per Batch	Monthly Average

Narrative Requirements	Due Date
Within 90 days of the permit effective date, the permittee shall submit an updated Biocide/Corrosion Treatment Plan (B/CTP) reflecting the new TRC limits included in the permit.	October 31, 2020
The permittee shall submit an annual Biocide/Corrosion Treatment Plan (B/CTP) report by January 31st of the following year.	January 31 (annually)
Within 180 days of the permit effective date, the permittee shall submit a report with updated information under §122.21(r)(6) outlining the permittee's chosen method of impingement mortality standards. This report shall also include through-screen velocity design flow documentation as required by §125.94(c)(2) and will include a compliance schedule for completion of the impingement technology performance optimization study and impingement mortality reduction.	February 28, 2021
At least once per permit cycle, the permittee shall perform a study to confirm the calibration of the numerical model used to determine compliance with the temperature requirements for Outfall 101. A report of this study shall be submitted to the division prior to the permit expiration date.	July 31, 2025

APPENDIX 6
WATER FLOW SCHEMATIC



SMT
TN0026450.doc

ENCLOSURE 2

TENNESSEE VALLEY AUTHORITY
SEQUOYAH NUCLEAR PLANT (SQN)

NPDES Permit No. TNR050015 - Notice of Coverage

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

MS. MILLICENT M. GARLAND

TENNESSEE VALLEY AUTHORITY (TVA)

e-copy: mrmoore@tva.gov

Tennessee Multi-Sector Permit (TMSP)
Notice of Coverage Fact Sheet

New Tennessee's general industrial stormwater discharge permit, also known as the Tennessee Multi Sector Permit (TMSP), became effective on July 20, 2020, for a period of two years. You are receiving this document because your name has been associated as an 'official contact' or 'facility contact,' affiliated with the TMSP permit tracking number TNR050015. If you receive more than one email from us, it means you are affiliated with more than one tracking number.

Previous TMSP reflected the 2015 federal Multi Sector General Permit (MSGP), which expired on June 4, 2020. EPA has proposed a 2020 MSGP that is fundamentally different from the previous permit and from Tennessee's 2015 TMSP. The comment period for the federal MSGP ended June 1, 2020, and the final permit is not anticipated until November 12, 2020.

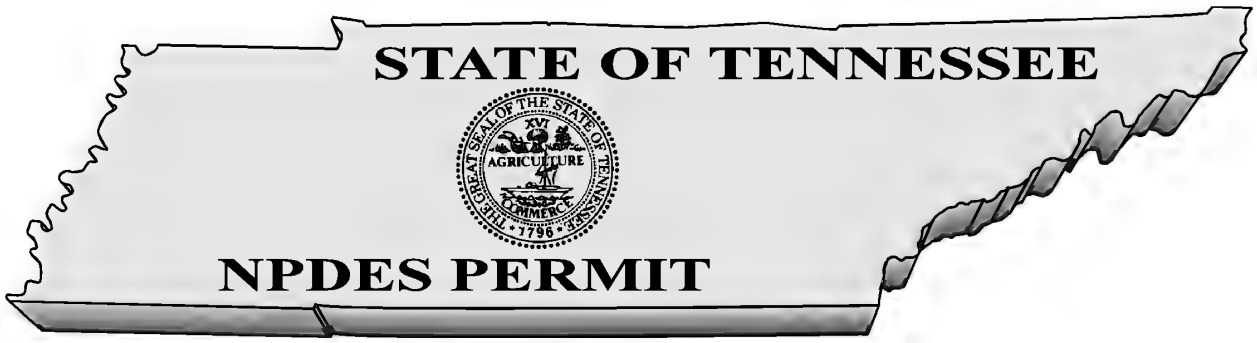
Rather than wait for EPA's final 2020 permit to inform Tennessee's new permit, we decided to reissue the 2015 TMSP, unchanged, for a term of two years. This will provide an opportunity to review the final federal permit prior to proposing any changes to the TMSP. Reissuing the 2020 TMSP for a two-year term will avoid impacting new industrial facilities who would be unable to receive permit coverage without an active TMSP in Tennessee.

If you have coverage under the current TMSP and plan to maintain it in this permit cycle, we are providing you with an updated Notice of Coverage (NOC) for the two-year reissuance period.

If you have coverage under the current TMSP but no longer need it, submit the appropriate documentation (No Exposure Certification Form or Notice of Termination) immediately. If you have coverage under the current TMSP, but realize that NOC information should be updated (e.g., facility name, location, receiving stream, contacts), submit an updated Notice of Intent (NOI) form to Water.Permits@tn.gov. All TMSP forms and links to other resources can be found here: https://www.tn.gov/environment/permit-permits/water-permits1/npdes-permits1/npdes-stormwater-permitting-program/npdes-industrial-stormwater-general-permit.html

If you have any questions, contact us at 1-888-891-TDEC or by email at *Water.Permits@tn.gov*.

Sincerely,
Water-Based Systems Unit
Division of Water Resources



Tracking No. TNR050015

Notice of Coverage under the General NPDES Permit for

STORM WATER DISCHARGES ASSOCIATED WITH INDUSTRIAL ACTIVITY (TMSP)

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: **Tennessee Valley Authority (TVA) Sequoyah Nuclear Plant (SQN)**

is authorized to discharge: storm water associated with industrial activity

from a facility located at: **Sequoyah Access Road** in **Soddy Daisy, Hamilton County**

to receiving waters named: **Chickamauga Reservoir**

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

Coverage under this general permit shall become effective on **July 21, 2020,** and shall expire on **June 30, 2022**.

Notice of Coverage Issuance date: **July 20, 2020**

Applicable Sector(s): **O**

A link to the copy of the TMSP, as well as permit requirements is at:
https://www.tn.gov/environment/permit-permits/water-permits1/npdes-permits1/npdes-stormwater-permitting-program/npdes-industrial-stormwater-general-permit.html