



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

August 23, 2021

19-00071

Mr. Lee F. Guthrie
Site Director
e-copy: lee.guthrie@jacob-holm.com
Sontara Old Hickory Inc.
326 Swinging Bridge Road
Old Hickory, TN 37138

Subject: **NPDES Permit No. TN0002259**
Sontara Old Hickory, Inc.
Old Hickory, Davidson County, Tennessee

Dear Mr. Guthrie:

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 Nashville Environmental Field Office at 1-888-891-TDEC; or, at this office, please contact Ms. Shannon McClellan at (615) 532-0485 or by E-mail at Shannon.McClellan@tn.gov.

Sincerely,



Vojin Janjić
Manager, Water-Based Systems

Enclosure

cc: Permit File & Nashville Environmental Field Office
Mr. Caleb Sanders, P.E., Hazen and Sawyer, P.C., csanders@hazenandsawyer.com
NPDES Permit Section, EPA Region IV, r4npdespermits@epa.gov
Mr. Andy White, Engineering Manager, Sontara Old Hickory Inc, Andy.white@jacob-holm.com
Mr. Jimmy Conner, Controls Engineer, Sontara Old Hickory Inc, jimmy.conner@jacob-holm.com
Ms. Saya A. Qualls, P.E., Engineer, Hazen and Sawyer, P.C., squalls@hazenandsawyer.com
Mr. Steven R. Alexander, Ecologist, U.S. Fish and Wildlife Service (USFWS), steven_alexander@fws.gov
Ms. Susanne Taylor, Safety, Health & Environmental Manager, Sontara Old Hickory Inc., susanne.taylor@jacob-holm.com



**Authorization to Discharge Under the
National Pollutant Discharge Elimination System (NPDES)
Permit Number TN0002259**

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

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

Discharger: **Sontara Old Hickory, Inc.**

is authorized to discharge: **treated process wastewater (via internal monitoring points 01A and 01B), treated groundwater, filter press filtrate, miscellaneous cooling and non-process wastewaters and storm water runoff from Outfall 001; and to operate a Cooling Water Intake Structure**

from a facility located at: **326 Swinging Bridge Road, Old Hickory, Davidson County, Tennessee**

to receiving waters named: **Cumberland River (Old Hickory Reservoir) at mile 218.4**

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

This permit shall become effective on: **September 1, 2021**

This permit shall expire on: **August 30, 2025**

Issuance date: **August 23, 2021**


for Jennifer Dodd
Director

Table of Contents

PART 1	1
1. EFFLUENT LIMITATIONS AND MONITORING REQUIREMENTS	1
1.1. Numeric and Narrative Effluent Limitations	1
1.2. Monitoring Procedures	4
1.3. Reporting	6
1.4. Compliance with Section 208	9
1.5. Reopener Clause	9
1.6. Schedule of Compliance	9
1.7. Electronic Reporting	9
PART 2	11
2. GENERAL PERMIT REQUIREMENTS	11
2.1. GENERAL PROVISIONS	11
2.2. Changes Affecting the Permit	13
2.3. Noncompliance	15
2.4. Liabilities	18
PART 3	19
3. PERMIT SPECIFIC REQUIREMENTS	19
3.1. Toxic Pollutants	19
3.2. Biomonitoring Requirements, Acute	20
3.3. Placement of Signs	22
3.4. Compliance with CWA Section 316(b) – Cooling Water Intake	23
PART 4	24
4. DEFINITIONS AND ACRONYMS	24
4.1. Definitions	24
4.2. Acronyms and Abbreviations	29
4.3. Resources, Hyperlinks, and Web Pages	31
PART 5	33
5. STORMWATER POLLUTION PREVENTION PLAN (SWPPP)	33
ADDENDUM TO RATIONALE	1
RATIONALE	1
1. FACILITY INFORMATION	1
1. FACILITY DISCHARGES AND RECEIVING STREAM INFORMATION	3
2. CURRENT PERMIT STATUS	5
3. APPLICABLE EFFLUENT LIMITATIONS GUIDELINES	5
4. PREVIOUS PERMIT TERM REVIEW	6
5. NEW PERMIT LIMITATIONS AND MONITORING REQUIREMENTS	6
Flow	11
5.1. Metals and Toxics	12
5.2. Total Organic Carbon (TOC)	12
5.3. Total Suspended Solids (TSS)	12
5.4. pH	12
5.5. Ammonia (NH ₃ -N)	12
5.6. Biomonitoring	14
6. OTHER PERMIT REQUIREMENTS AND CONDITIONS	17
6.1. Permit Term	17
6.2. Electronic Reporting	17
6.3. Antidegradation Statement / Water Quality Status	18
6.4. Compliance with CWA Section 316(B) – Cooling Water Intake	18

APPENDIX 1 – PREVIOUS PERMIT LIMITS	25
APPENDIX 2 – DMR SUMMARY	27
APPENDIX 3 – METALS & TOXICS CALCULATIONS	31
APPENDIX 4 – APPLICABLE EFFLUENT LIMITATIONS GUIDELINES	37
APPENDIX 5 – FACILITY DISCHARGES AND LOW FLOW DETERMINATION	44
APPENDIX 6 – NEW PERMIT LIMITS.....	47

PART 1

1. EFFLUENT LIMITATIONS AND MONITORING REQUIREMENTS

1.1. NUMERIC AND NARRATIVE EFFLUENT LIMITATIONS

Sontara Old Hickory, Inc. is authorized to discharge treated process wastewater (via internal monitoring points 01A and 01B), treated groundwater, filter press filtrate, miscellaneous cooling and non-process wastewaters and storm water runoff from Outfall 001; and to operate a Cooling Water Intake Structure to Cumberland River (Old Hickory Reservoir) at mile 218.4.

1.1.1. Numeric Effluent Limitations

Authorized discharges shall be limited and monitored by the permittee as specified below:

Effluent Limits- IMP 01A

Description: External Outfall, Number: 01A, Monitoring: Effluent Gross, Season: All Year

Code	Parameter	Qualifier	Value	Unit	Sample Type	Monitoring Frequency	Statistical Base
00310	BOD, 5-day, 20 C	<=	291.5	lb/d	Composite	Twice Per Month	Daily Maximum
00310	BOD, 5-day, 20 C	<=	129.4	lb/d	Composite	Twice Per Month	Monthly Average
00400	pH	>=	6.0	SU	Grab	Weekly	Daily Minimum
00400	pH	<=	9.0	SU	Grab	Weekly	Maximum
00530	Total Suspended Solids (TSS)	<=	527.5	lb/d	Composite	Weekly	Daily Maximum
00530	Total Suspended Solids (TSS)	<=	183.1	lb/d	Composite	Weekly	Monthly Average
50050	Flow	Report	-	MGD	Recorder	Continuous	Daily Maximum
50050	Flow	Report	-	MGD	Recorder	Continuous	Monthly Average
81017	Chemical Oxygen Demand (COD)	Report	-	lb/d	Composite	Weekly	Daily Maximum
81017	Chemical Oxygen Demand (COD)	Report	-	lb/d	Composite	Weekly	Monthly Average

Notes:

- Limits highlighted have new loadings due to an updated flow and production rate.
- Monitoring frequency for BOD in both IMP outfalls have been reduced to twice per month. See addendum to rationale and rationale for further explanation.
- See **Part 1.2.3** for test procedures.

Monitoring Waived for Priority Pollutants- IMP 01A

After reviewing the application outfall data for Sulfide, Phenol, and Total Chromium, the Division has continued to exclude limit reporting for these parameters due to the 2020 application data reporting below detection levels. Sontara also does not use thermal or chemical bonding to make non-woven fabric. The permittee's discharge has no reasonable potential to adversely affect water quality with these parameters.

The permittee shall notify the Division of Water Resources as soon as it knows or has reason to believe that any activity has occurred or will occur which would result in the discharge on a routine or frequent basis, or non-routine or infrequent basis, of any pollutants which presence in the effluent would invalidate effluent certification dated December 3, 2004, submitted by DuPont as a waiver of sampling requirements for guideline-listed pollutants. Any changes to facility operations that may result in discharges above the levels reported as a part of the certification should be reported according to 40 CFR 122.41(l)(2).

Effluent Limits- IMP 01B

Description: External Outfall, Number: 01B, Monitoring: Effluent Gross, Season: All Year

Code	Parameter	Qualifier	Value	Unit	Sample Type	Monitoring Frequency	Statistical Base
00310	BOD, 5-day, 20 C	<=	2942.1	lb/d	Composite	Twice Per Month	Daily Maximum
00310	BOD, 5-day, 20 C	<=	1609.9	lb/d	Composite	Twice Per Month	Monthly Average
00400	pH	>=	6.0	SU	Grab	Weekly	Daily Minimum
00400	pH	<=	9.0	SU	Grab	Weekly	Maximum
00530	Total Suspended Solids (TSS)	<=	2747.5	lb/d	Composite	Once Every Two Months	Daily Maximum
00530	Total Suspended Solids (TSS)	<=	1346.0	lb/d	Composite	Once Every Two Months	Monthly Average
50050	Flow	Report	-	MGD	Recorder	Continuous	Daily Maximum
50050	Flow	Report	-	MGD	Recorder	Continuous	Monthly Average
81017	Chemical Oxygen Demand (COD)	<=	7322.6	lb/d	Composite	Twice Per Month	Daily Maximum
81017	Chemical Oxygen Demand (COD)	<=	3938.9	lb/d	Composite	Twice Per Month	Monthly Average

Notes:

- Limits highlighted have new loadings due to an updated flow and production rate.



- Monitoring frequency for BOD in both IMP outfalls have been reduced to twice per month. See addendum to rationale and rationale for explanation.
- See **Part 1.2.3** for test procedures.

Effluent Limits- Outfall 001

Description: External Outfall, Number: 001, Monitoring: Effluent Gross, Season: All Year

<u>Code</u>	<u>Parameter</u>	<u>Qualifier</u>	<u>Value</u>	<u>Unit</u>	<u>Sample Type</u>	<u>Monitoring Frequency</u>	<u>Statistical Base</u>
00400	pH	>=	6.0	SU	Grab	Weekly	Daily Minimum
00400	pH	<=	9.0	SU	Grab	Weekly	Maximum
00530	Total Suspended Solids (TSS)	Report	-	mg/L	Grab	Monthly	Daily Maximum
00530	Total Suspended Solids (TSS)	Report	-	mg/L	Grab	Monthly	Monthly Average
00680	Carbon, Total Organic (TOC)	Report	-	mg/L	Grab	Weekly	Daily Maximum
00680	Carbon, Total Organic (TOC)	Report	-	mg/L	Grab	Weekly	Monthly Average
50050	Flow	Report	-	MGD	Recorder	Continuous	Daily Maximum
50050	Flow	Report	-	MGD	Recorder	Continuous	Monthly Average
TAA3B	LC50 Static 48Hr Acute Ceriodaphnia	>=	2.8	%	Composite	1/Permit	Minimum
TAA6C	LC50 Static 48Hr Acute Pimephales promelas	>=	2.8	%	Composite	1/Permit	Minimum

Notes: Limits highlighted are new loadings based on recent stream flow and production data.

See **Part 1.2.3** for test procedures.

See **Part 3.3** for biomonitoring test and reporting requirements.

The Division has determined that the cooling water intake structure used by the permittee represents the best technology available (BTA) to minimize adverse environmental impact in accordance with Section 316(b) of the federal Clean Water Act (33 U.S.C. section 1326).

1.1.2. Narrative Conditions

Additional monitoring and reporting requirements are listed below.



The authorized discharge(s) shall not:

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

Sludge or any other material removed by any treatment works must be disposed of in a manner that prevents its entrance into or pollution of any surface or subsurface waters. Additionally, the disposal of such sludge or other material must be in compliance with the Tennessee Solid Waste Disposal Act, Tennessee Code Annotated (Tenn. Code Ann.) §68-31-101 et seq. and the Tennessee Hazardous Waste Management Act, Tenn. Code Ann. §68-46-101 et. seq.

Nothing in this permit authorizes take for the purposes of a facility's compliance with the Endangered Species Act, in accordance with 40 CFR 125.98(b)(1).

1.2. MONITORING PROCEDURES

1.2.1. Representative Sampling

Samples and measurements taken in compliance with the monitoring requirements specified herein shall be representative of the volume and nature of the monitored discharge and shall be taken after treatment and prior to mixing with uncontaminated stormwater runoff or the receiving stream. Appropriate flow measurement devices and methods consistent with accepted scientific practices shall be selected and used to ensure the accuracy and reliability of measurements of the volume of monitored discharges. The devices shall be installed and calibrated by a qualified source at least once every 12 months¹, and maintained to ensure that the accuracy of the measurements is consistent with accepted capability of that type of device. Devices selected shall be capable of measuring flows with a maximum deviation of plus or minus 10% from the true discharge rates throughout the range of expected discharge volumes.

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



Composite samples must be proportioned by flow at the time of sampling. Aliquots may be collected manually or automatically. The sample aliquots must be maintained at $\leq 6^{\circ}\text{C}$ during the compositing period, or as otherwise specified in 40 CFR §136 or in the method.

Samples and measurements taken in compliance with the monitoring requirements specified above shall be representative of the volume and nature of the monitored discharge. Samples must be representative of the effluent being discharged and collected prior to mixing with any other discharge or the receiving stream. This can be at a different point for different parameters but must be after all treatment for that parameter or all expected changes. Biomonitoring tests, if required, must be conducted on final effluent.

1.2.2. Sampling Frequency

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

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

1.2.3. Test Procedures

- a) Test procedures for the analysis of pollutants shall conform to regulations published pursuant to Section 304 (h) of the Clean Water Act (the "Act"), as amended, under which such procedures may be required.
- b) Unless otherwise noted in the permit, all pollutant parameters shall be determined using sufficiently sensitive methods in Title 40 CFR § 136, as amended, and promulgated pursuant to Section 304 (h) of the Act. The chosen methods must be sufficiently sensitive as required in state rule 0400-40-03-.05(8).
- c) If the ML for all methods available in accordance with 40 CFR § 136 are above the stated permit limit or applicable water quality criteria for that parameter, then the method with the lowest ML shall be used.



- d) Where the analytical results are below the method detection limit (MDL), the permittee shall report the actual laboratory MDL and ML values. See **Section 1.3.4.** for instructions regarding reporting less than detection.
- e) When there is no analytical method that has been approved under 40 CFR §136 or required under 40 CFR chapter I, subchapter N or O, and a specific method is not otherwise required by the Director, the permittee may use any suitable method but shall provide a description of the method. When selecting a suitable method, factors such as a method's precision, accuracy, or resolution must be considered when assessing the performance of the method.
- f) All sampling for total mercury shall use Methods 1631, 245.7, or any additional method in 40 CFR § 136 with a maximum detection limit of 5 ng/L.

1.2.4. Recording of Results

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

- i. The date, exact place, and time of sampling or measurements;
- ii. The individual(s) who performed the sampling or measurements;
- iii. The date analyses were performed;
- iv. The individual(s) who performed the analyses;
- v. The laboratory where the analyses were performed;
- vi. The analytical techniques or methods used; and
- vii. The results of such analyses.

1.2.5. Records Retention

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

1.3. REPORTING

1.3.1. Monitoring Results

Monitoring results shall be recorded monthly and submitted monthly on Discharge Monitoring Reports (DMRs) using EPA's [NetDMR](#) website. The first DMR is due on the 15th of the month following permit effectiveness. Subsequent DMRs



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

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

In the event that electronic reporting is unavailable, the permittee shall comply with reporting conditions provided in **Section 1.7**.

1.3.2. Additional Monitoring by Permittee

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

1.3.3. Falsifying Results and/or Reports

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

1.3.4. Reporting Less Than Detection; Reporting Significant Figures

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

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



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

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

In instances where an average must be calculated with a mix of numerical and BDL results, the permittee shall calculate the average using the MDL value for BDL results.

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

1.3.5. 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), can it be removed from the data set and not reported on 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. The permittee should use the "comment" section in NetDMR to explain any potential outliers or dubious results.



1.4. COMPLIANCE WITH SECTION 208

The limits and conditions in this permit shall require compliance with an area-wide waste treatment plan (208 Water Quality Management Plan) where such approved plan is applicable.

1.5. REOPENER CLAUSE

This permit shall be modified, or alternatively revoked and reissued, to comply with any applicable effluent standard or limitation issued or approved under Sections 301(b)(2)(C) and (D), 307(a)(2), and 304(b)(2) of the Clean Water Act, as amended, if the effluent standard or limitation so issued or approved:

- a) Contains different conditions or is otherwise more stringent than any condition in the permit; or
- b) Controls any pollutant or disposal method not addressed in the permit.

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

1.6. SCHEDULE OF COMPLIANCE

Full compliance and operational levels shall be attained from the effective date of this permit.

1.7. ELECTRONIC REPORTING

This permit requires the submission of forms developed by the Director in order for a person to comply with certain requirements, including, but not limited to, making reports, submitting monitoring results, and applying for permits. The Director may make these forms available electronically and, if submitted electronically, then that electronic submission shall comply with the requirements of Chapter [0400-01-40](#).

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



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

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

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



PART 2

2. GENERAL PERMIT REQUIREMENTS

2.1. GENERAL PROVISIONS

2.1.1. Duty to Comply

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

2.1.2. Duty to Reapply

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

2.1.3. Proper Operation and Maintenance

- a) The permittee shall at all times properly operate and maintain all facilities and systems (and related appurtenances) for collection and treatment which are installed or used by the permittee to achieve compliance with the terms and conditions of this permit. Proper operation and maintenance also includes adequate laboratory and process controls and appropriate quality assurance procedures. This provision requires the operation of backup or auxiliary facilities or similar systems, which are installed by a permittee only when the operation is necessary to achieve compliance with the conditions of the permit. Backup continuous pH and flow monitoring equipment are not required.
- b) Dilution water shall not be added to comply with effluent requirements to achieve BCT, BPT, BAT, or other technology based effluent limitations such as those established in Tennessee Rule [0400-40-05-.09](#).

2.1.4. Duty to Provide Information

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



2.1.5. Right of Entry

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

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

2.1.6. Availability of Reports

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

2.1.7. Treatment Facility Failure (Industrial Sources)

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

2.1.8. Property Rights

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



2.1.9. Severability

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

2.1.10. Other Information

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

2.2. CHANGES AFFECTING THE PERMIT

2.2.1. Planned Changes

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

- a) The alteration or addition to a permitted facility may meet one of the criteria for determining whether a facility is a new source as defined in Rule [0400-40-05-.02](#);
- b) The alteration or addition could significantly change the nature or increase the quantity of pollutants discharged. This notification applies to pollutants which are subject neither to effluent limitations in the permit nor to notification requirements under 40 CFR § 122.42(a)(1); or
- c) The alteration or addition results in a significant change in the permittee's sludge use or disposal practices.

2.2.2. Permit Modification, Revocation, or Termination

- a) This permit may be modified, revoked and reissued, or terminated for cause as described in 40 CFR § 122.62 and § 122.64, Federal Register, Volume 49, No. 188 (Wednesday, September 26, 1984), as amended. Causes for such permit action include but are not limited to the following:
 - i. Violation of any terms or conditions of the permit;
 - ii. Obtaining a permit by misrepresentation or failure to disclose fully all relevant facts; and
 - iii. A change in any condition that requires either a temporary or permanent reduction or elimination of the permitted discharge.



- b) The permittee shall furnish to the Director, within a reasonable time, any information which the Director may request to determine whether cause exists for modifying, revoking and reissuing, or terminating this permit, or to determine compliance with this permit.
- c) If any applicable effluent standard or prohibition (including any schedule of compliance specified in such effluent standard or prohibition) is established for any toxic pollutant under Section 307(a) of the Federal Water Pollution Control Act, as amended, the Director shall modify or revoke and reissue the permit to conform to the prohibition or to the effluent standard, providing that the effluent standard is more stringent than the limitation in the permit for the toxic pollutant. The permittee shall comply with these effluent standards or prohibitions within the time provided in the regulations that establish these standards or prohibitions, even if the permit has not yet been modified or revoked and reissued to incorporate the requirement.
- d) The filing of a request by the permittee for a modification, revocation, reissuance, termination, or notification of planned changes or anticipated noncompliance does not halt any permit condition.

2.2.3. Change of Ownership

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

- a) The permittee notifies the Director of the proposed transfer at least 30 days in advance of the proposed transfer date;
- b) The notice includes a written agreement between the existing and new permittees containing a specified date for transfer of permit responsibility, coverage, and liability between them; and
- c) The permittee shall provide the following information to the Director in their formal notice of intent to transfer ownership:
 - i. The permit number of the subject permit;
 - ii. The effective date of the proposed transfer;
 - iii. The name, address, and contact information of the transferor;
 - iv. The name, address, and contact information of the transferee;



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

2.2.4. Change of Mailing Address

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

2.3. NONCOMPLIANCE

2.3.1. Reporting of Noncompliance

a) 24-hour Reporting:

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

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

- i. A description of the discharge and cause of noncompliance;
- 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 DMR. The report shall contain all information concerning the steps taken, or planned, to reduce, eliminate, and prevent recurrence of the violation and the anticipated time the violation is expected to continue.

2.3.2. Overflows and Releases

Unpermitted discharges from the collection or treatment system of industrial facilities are prohibited.

2.3.3. Upset

- a) *"Upset"* means an exceptional incident in which there is unintentional and temporary noncompliance with technology-based effluent limitations due to factors beyond the reasonable control of the permittee. An upset does not include noncompliance to the extent caused by operational error, improperly designed treatment facilities, inadequate treatment facilities, lack of preventive maintenance, or careless or improper operation.
- b) An upset shall constitute an affirmative defense to an action brought for noncompliance with such technology-based permit effluent limitations if the permittee demonstrates, through properly signed, contemporaneous operating logs, or other relevant evidence that:
 - i. An upset occurred and that the permittee can identify the cause(s) of the upset;
 - ii. The permitted facility was at the time being operated in a prudent and workman-like manner and in compliance with proper operation and maintenance procedures;
 - iii. The permittee submitted information required under "Reporting of Noncompliance" within 24 hours of becoming aware of the upset (if this information is provided orally, a written submission must be provided within five days); and
 - iv. The permittee complied with any remedial measures required under "Adverse Impact".



2.3.4. Adverse Impact

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

2.3.5. Bypass

- a) *"Bypass"* means the intentional diversion of waste streams from any portion of a treatment facility. *"Severe property damage"* means substantial physical damage to property, damage to the treatment facilities which would cause them to become inoperable, or substantial and permanent loss of natural resources which can reasonably be expected to occur in the absence of a bypass. Severe property damage does not mean economic loss caused by delays in production.
- b) Bypasses are prohibited unless all the following conditions are met:
 - i. The bypass is unavoidable to prevent loss of life, personal injury, or severe property damage;
 - ii. There are no feasible alternatives to bypass, such as the use of auxiliary treatment facilities, retention of untreated wastes, or maintenance during normal periods of equipment downtime. This condition is not satisfied if adequate back-up equipment should have been installed in the exercise of reasonable engineering judgment to prevent a bypass which occurred during normal periods of equipment downtime or preventative maintenance; and
 - iii. For anticipated bypass, the permittee submits prior notice, if possible at least ten days before the date of the bypass, or for unanticipated bypass, the permittee submits notice of an unanticipated bypass within 24 hours from the time that the permittee becomes aware of the bypass.
- c) Bypasses that do not cause effluent limitations to be exceeded may be allowed only if the bypass is necessary for essential maintenance to assure efficient operation and are not subject to the reporting requirements of part b) iii. above.



2.4. LIABILITIES

2.4.1. Civil and Criminal Liability

Except as provided in permit conditions for "*Bypass*" (**Section 2.3.5**), "*Overflows and Releases*" (**Section 2.3.2**), and "*Upset*" (**Section 2.3.3**), nothing in this permit shall be construed to relieve the permittee from civil or criminal penalties for noncompliance. Notwithstanding this permit, the permittee shall remain liable for any damages sustained by the State of Tennessee, including, but not limited to, fish kills and losses of aquatic life and/or wildlife as a result of the discharge of wastewater to any surface or subsurface waters. Additionally, notwithstanding this permit, it shall be the responsibility of the permittee to conduct its wastewater treatment and/or discharge activities in a manner such that public or private nuisances or health hazards will not be created.

2.4.2. Liability Under State Law

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



PART 3

3. PERMIT SPECIFIC REQUIREMENTS

3.1. TOXIC POLLUTANTS

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

- a) Any activity has occurred or will occur which would result in the discharge on a routine or frequent basis of any toxic substance(s) not limited in the permit (listed in 40 CFR 122, Appendix D, Table II and III), if that discharge will exceed the highest of the following “notification levels”:
 - i. One hundred micrograms per liter (100 µg/L);
 - ii. Two hundred micrograms per liter (200 µg/L) for acrolein and acrylonitrile; five hundred micrograms per liter (500 µg/L) for 2,4-dinitrophenol and for 2-methyl-4,6-dinitrophenol; and one milligram per liter (1 mg/L) for antimony;
 - iii. Five times the maximum concentration value reported for that pollutant(s) in the permit application in accordance with 40 CFR 122.21(g)(7); or
 - iv. The level established by the Director in accordance with 40 CFR 122.44(f).
- b) 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”:
 - i. Five hundred micrograms per liter (500 µg/L);
 - ii. One milligram per liter (1 mg/L) for antimony;
 - iii. Ten times the maximum concentration value reported for that pollutant in the permit application in accordance with 40 CFR 122.21(g)(7); or
 - iv. The level established by the Director in accordance with 40 CFR 122.44(f).



3.2. BIOMONITORING REQUIREMENTS, ACUTE

The permittee shall conduct a 48-hour static acute toxicity test on two test species on samples of final effluent from Outfall 001. The test species to be used are Water Fleas (*Ceriodaphnia dubia*) and Fathead Minnows (*Pimephales promelas*).

The measured endpoint for toxicity will be the concentration causing 50% lethality (LC_{50}) of the test organisms. The LC_{50} shall be determined based on a 50% lethality as compared to the controls, and as derived from linear interpolation.

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

Serial Dilutions for Whole Effluent Toxicity (WET) Testing					
4 X PL	2 X PL	Permit Limit (PL)	0.50 X PL	0.25 X PL	Control
% effluent					
11.2	5.6	2.8	1.4	0.7	0

The dilution/control water used will be moderately hard water as described in [*Methods for Measuring the Acute Toxicity of Effluents to Freshwater and Marine Organisms*](#), EPA-821-R-02-012 (or the most current edition). An acute standard reference toxicant quality assurance test shall be conducted with each species used in the toxicity tests and the results submitted with the discharge monitoring report. 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 LC_{50} is less than or equal to the permit limit indicated for each outfall in the above table(s).

All tests will be conducted using four separate grab samples of final effluent, to be used in four separate tests, and shall be collected at evenly spaced (6-hour) intervals over a 24-hour period. If in any control, more than 10% of the test organisms die in 48 hours, the test (control and effluent) is considered invalid and the test shall be repeated within two (2) weeks. Furthermore, if the results do not meet the acceptability criteria in the above-referenced *Methods for Measuring the Acute Toxicity* document, 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 shall be conducted once during the permit cycle (1/permit) for outfall 001 and can be submitted within 180 days before the expiration date of this permit.

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.

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 and determination of effluent lethality values will be made in accordance with [*Methods for Measuring the Acute Toxicity of Effluents to Freshwater and Marine Organisms*](#), EPA-821-R-02-012, or the most current edition. Results of all tests, reference toxicant information, copies of



raw data sheets, statistical analysis and chemical analysis shall be compiled in a report also written in accordance with the *Methods for Measuring the Acute Toxicity* document above.

A copy of the biomonitoring report (including any follow-up reports) shall be submitted to the Division as an attachment to the monthly DMR in NetDMR.

3.3. PLACEMENT OF SIGNS

Within sixty (60) days of the effective date of this permit, the permittee shall place and maintain a sign at each outfall or the nearest publicly accessible location. The sign(s) should be clearly visible to the public from the bank and the receiving stream. The minimum sign size should be two feet by two feet (2' x 2') with one-inch (1") letters. The sign should be made of durable material and have a white background with black letters.

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

Treated Industrial Wastewater:

TREATED INDUSTRIAL WASTEWATER
Sontara Old Hickory, Inc.
(615) 526-2283
NPDES Permit No. TN0002259
TENNESSEE DIVISION OF WATER RESOURCES
1-888-891-8332 ENVIRONMENTAL FIELD OFFICE - Nashville

Industrial Stormwater Runoff:

INDUSTRIAL STORMWATER RUNOFF
Sontara Old Hickory, Inc.
(615) 526-2283
NPDES Permit No. TN0002259
TENNESSEE DIVISION OF WATER RESOURCES
1-888-891-8332 ENVIRONMENTAL FIELD OFFICE - Nashville



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

When a permittee submits an application for permit renewal, the permittee must also submit to the Director the information required under 40 CFR 122.21(r), as outlined below. The permittee may request for the Division to grant a waiver to submit reduced application information in accordance with 40 CFR 125.95(c) at least two years, six months prior to permit expiration.

With each renewal application, the permittee must submit to the Division:

- (r)(2) – Source water physical data;
- (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; and
- (r)(8) – Operational status.

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 Division has determined, using Best Professional Judgment (BPJ) that the cooling water intake structure represents BTA to minimize adverse environmental impact in accordance with Section 316(b) of the CWA.



PART 4

4. DEFINITIONS AND ACRONYMS

4.1. DEFINITIONS

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.

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

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

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

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

Continuous monitoring, for the purposes of this permit, means the measurement of temperature or pH 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 15 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 at 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.

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

The **daily maximum concentration** is a limitation on the average concentration in units of mass per volume (e.g. milligrams per liter) of the discharge during any calendar day. When a proportional-to-flow composite sampling device is used, the daily 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.

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.

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.

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

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



cumulatively, are offset by impact minimization and/or in-system mitigation, provided however, in Outstanding National Resource Waters (ONRWs) the mitigation must occur within the ONRW.

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

An **ecoregion** is a relatively homogeneous area defined by similarity of climate, landform, soil, potential natural vegetation, hydrology, or other ecologically relevant variables.

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.

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

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

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

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

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

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



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

Pollutant means sewage, industrial wastes, or other wastes.

A **qualifying storm event** is a storm event in which greater than 0.1 inches of rainfall occurs after a period of at least 72 hours following any previous storm event with rainfall of 0.1 inches or greater.

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

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

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

A **reference site** means the least impacted waters within an ecoregion that have been monitored to establish a baseline to which alterations of other waters can be compared.

A **reference condition** is a parameter-specific set of data from regional reference sites that establish the statistical range of values for that particular substance at least-impacted streams.

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

Severe property damage, when used to consider the allowance of a bypass, means substantial physical damage to property, damage to the treatment facilities which causes them to become inoperable, or substantial and permanent loss of natural resources which can reasonably be expected to occur in the



absence of a bypass. Severe property damage does not mean economic loss caused by delays in production.

A **subcoregion** is a smaller, more homogenous area that has been delineated within an ecoregion.

Unpermitted discharge refers to the discharge of pollutants to waters not authorized by this permit.

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

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

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

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

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

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



4.2. ACRONYMS AND ABBREVIATIONS

1Q10 –	1-day minimum, 10-year recurrence interval
30Q5 –	30-day minimum, 5-year recurrence interval
7Q10 –	7-day minimum, 10-year recurrence interval
BAT –	best available technology economically achievable
BCT –	best conventional pollutant control technology
BDL –	below detection limit
BOD ₅ –	five-day biochemical oxygen demand
BPT –	best practicable control technology currently available
CBOD ₅ –	five-day carbonaceous biochemical oxygen demand
CEI –	compliance evaluation inspection
CFR –	code of federal regulations
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
<i>E. coli</i> –	<i>Escherichia coli</i>
EPA –	Environmental Protection Agency
EFO –	environmental field office
GPM –	gallons per minute
GPD –	gallons per day
IC ₂₅ –	inhibition concentration causing 25% reduction in survival, reproduction, and growth of the test organisms
IU –	industrial user
IWS –	industrial waste survey
LB (lb) –	pound
LC ₅₀ –	acute test causing 50% lethality
MDL –	method detection limit
MGD –	million gallons per day
mg/L –	milligrams per liter
ML –	minimum level of quantification
mL –	milliliter
MLSS –	mixed liquor suspended solids
MOR –	monthly operating report
NODI –	no discharge code in NetDMR
NPDES –	national pollutant discharge elimination system
PL –	permit limit
POTW –	publicly owned treatment works



SAR – semi-annual report [pretreatment program]
SIU – significant industrial user
SSO – sanitary sewer overflow
STP – sewage treatment plant
TBEL – technology-based effluent limit
TCA – Tennessee code annotated
TDEC – Tennessee Department of Environment and Conservation
TIE/TRE – toxicity identification evaluation/toxicity reduction evaluation
TMDL – total maximum daily load
TRC – total residual chlorine
TSS – total suspended solids
WQBEL – water quality-based effluent limit



4.3. RESOURCES, HYPERLINKS, AND WEB PAGES

Clean Water Act NPDES Electronic Reporting (eReporting) Information

<https://www.epa.gov/compliance/npdes-ereporting>

Clean Water Act Section 316(b) Cooling Water Intake Existing Facility Final Rule

<https://www.federalregister.gov/documents/2014/08/15/2014-12164/national-pollutant-discharge-elimination-system-final-regulations-to-establish-requirements-for>

Electronic Code of Federal Regulations (eCFR), Title 40 (40 CFR § 1 through § 1099)

<https://www.ecfr.gov/cgi-bin/text-idx?SID=75202eb5d09974cab585afeea981220b&mc=true&tpl=/ecfrbrowse/Title40/40chapter1.tpl>

Electronic Reporting (NetDMR) Waiver Request

https://www.tn.gov/content/dam/tn/environment/water/documents/wr_ereporting_waiver.pdf

Low Flow Statistics Tools: A How-To Handbook for NPDES Permit Writers (EPA)

https://www.epa.gov/sites/production/files/2018-11/documents/low_flow_stats_tools_handbook.pdf

Methods for Measuring the Acute Toxicity of Effluents and Receiving Waters to Freshwater and Marine Organisms (EPA)

https://www.epa.gov/sites/production/files/2015-08/documents/acute-freshwater-and-marine-wet-manual_2002.pdf

MyTDEC Forms

<https://forms.tdec.tn.gov/>

NetDMR Login

<https://cdxnodengn.epa.gov/net-netdmr/>

NetDMR & Electronic Reporting Information

<https://www.tn.gov/environment/program-areas/wr-water-resources/netdmr-and-electronic-reporting.html>

NPDES Compliance Inspection Manual (EPA)

<https://www.epa.gov/sites/production/files/2017-01/documents/npdesinspect.pdf>

NPDES Electronic Reporting Rule

<https://www.federalregister.gov/documents/2015/10/22/2015-24954/national-pollutant-discharge-elimination-system-npdes-electronic-reporting-rule>



Quality System Standard Operating Procedure for Macroinvertebrate Stream Surveys (QSSOP)

https://www.tn.gov/content/dam/tn/environment/water/documents/DWR-PAS-P-01-Quality_System_SOP_for_Macroinvertebrate_Stream_Surveys-081117.pdf

Rules of the TN Department of Environment and Conservation, Chapter 0400-40

<https://publications.tnsosfiles.com/rules/0400/0400-40/0400-40.htm>

Short-term Methods for Estimating the Chronic Toxicity of Effluents and Receiving Waters to Freshwater Organisms (EPA)

https://www.epa.gov/sites/production/files/2015-08/documents/short-term-chronic-freshwater-wet-manual_2002.pdf

TDEC Water Quality Rules, Reports, and Publications

<https://www.tn.gov/environment/program-areas/wr-water-resources/water-quality/water-quality-reports---publications.html>

Technical Support Document for Water Quality-based Toxics Control (EPA)

<https://www3.epa.gov/npdes/pubs/owm0264.pdf>

Tennessee Nutrient Reduction Framework

https://www.tn.gov/content/dam/tn/environment/water/tmdl-program/wr-ws_tennessee-draft-nutrient-reduction-framework_030315.pdf

Tennessee Plant Optimization Program (TNPOP)

<https://www.tn.gov/environment/program-areas/wr-water-resources/tn-plant-optimization-programs/tnpop.html>

Tennessee Water Resources Data and Map Viewers

<https://www.tn.gov/environment/program-areas/wr-water-resources/water-quality/water-resources-data-map-viewers.html>

USGS StreamStats

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

USGS SWToolbox

<https://www.usgs.gov/software/swtoolbox-software-information>

PART 5

5. STORMWATER POLLUTION PREVENTION PLAN (SWPPP)

Storm water runoff at Sontara Old Hickory Inc. plant that is not discharged through permitted outfalls as described in Part I.A. of this permit is authorized under the Tennessee Storm Water Multi Sector General Permit for Industrial Activities (TMSP), tracking number TNR053980. The TMSP requires the permittee to prepare and implement a storm water pollution prevention plan (SWPPP). The permittee shall ensure that the facility SWPPP incorporates appropriate pollution prevention measures that minimize the discharge of pollutants in stormwater routed through permitted outfalls. Any necessary plan modifications shall be completed within 180 days after the effective date of this permit.

ADDENDUM TO RATIONALE

**Sontara Old Hickory, Inc.
NPDES Permit Number TN0002259
Date: August 23, 2021
Permit Writer: Shannon McClellan**

During the Public Notice period, the Division of Water Resources (the division) received comments from Sontara on May 12, 2021, and August 23, 2021. The division thanks the permittee for their comments and questions on the draft permit. The comments are listed below, and the division's answers are in bold font.

1. Seeing Lb/d and Mg/l both being used – should we just standardize?
 - a. COD for 01A and 01B going from Mg/L to Lb/d.
 - b. TOC also going from Mg/L to Lb/d on 001.
 - c. TSS is lbs/d for 01A and 01B but remains Mg/L for 001.

The applicable Effluent Limitation Guideline (ELG) treatment standards promulgated by EPA for COD units are in lb/day. In the previous permit, units for COD in IMP01B are listed in lb/day, yet the limits for IMP01A are listed in mg/L. I believe this was a typographical error on the previous permit writer's part due to ELGs needing to be reported in lb/day. In this permit, the units for COD in IMP01A and IMP01B are both in lb/day, as required by the ELGs. Total Organic Carbon is not a part of the ELG calculations, therefore the units for TOC are to be reported in mg/L. TSS units are mg/L for Outfall 001, due to being "report only" and not being calculated from the ELGs.

2. Should we be moving flow to "continuous" frequency and "recording" the sample?
 - a. 01A is calling for "Continuous" sampling and sample type of "Recorder"
 - b. 01B is calling for "Weekly" sampling and "Continuous" sampling
 - c. Both continuous recording?
 - d. We have continuous recorders on all outfalls, so this won't be an issue.

After reviewing the previous and proposed permit, the division realizes this was a typographical error. Flow frequency will be "continuous", and the sample type will be "recorder" as stated in the Outfall IMP01A and Outfall 001 limits table. The IMP01B limits table in the permit has been updated to reflect this change.

- 3) We had also talked about the possibility of converting the permit to have exclusive COD reporting and eliminating any BOD tests
 - a. As you know, the BOD test is more complex and time-consuming

b. We understood that as our stream has a consistent profile, this might well be allowable.

The BOD limits were kept in the new permit since BOD₅ is a parameter used for measuring treatment performance per ELGs, rather than COD. We have, however, reduced the monitoring frequency for BOD sampling due to the frequent sampling of COD which is very similar to BOD. The limits for COD are approximately comparable to BOD using the 2:1 proportion (COD: BOD). The monitoring frequency for BOD in IMP01A and IMP01B has been reduced from weekly to twice per month. These changes have been reflected in the final permit.

While reviewing the final permit I noticed Part 1 (pages 1 & 2) reflect the decrease in BOD sampling for 01A & 01B to twice a month vs weekly; however, the New Permit language in App 6 does not reflect the change.

The division realizes that this is a typographical error in Appendix 6. The monitoring frequency limits in the permit are what will be enforced in the renewed permit. The typographical error in the Rationale cannot be changed after the draft has gone on Public Notice. This typographical error will be fixed in the next permit cycle.

RATIONALE

Sontara Old Hickory, Inc.
NPDES Permit Number TN0002259
Date: 8/23/2021
Permit Writer: Shannon McClellan

1. FACILITY INFORMATION

Permittee Name:	Sontara Old Hickory, Inc.
Location:	326 Swinging Bridge Road, Old Hickory, Davidson County, Tennessee
Contact:	Mr. Lee Guthrie - Site Director (615) 526-2283 lee.guthrie@jacob-holm.com
Average Flow Rate:	9.05 MGD
Nature of Business:	Manufacture of spunbonded polypropylene and/or polypropylene fibers by melt-blown process, and non-woven fiber by hydro-consolidating natural & synthetic fibers.
SIC Code(s):	2297
Industrial Classification:	Primary Facility *
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])



FACILITY DISCHARGES AND RECEIVING WATERS

OUTFALL 001	
LONGITUDE	LATITUDE
-86.6497	36.2775

FLOW (MGD)	DISCHARGE SOURCE
0.046	Process wastewater from boiler blowdown
0.102	Contact stormwater minus Evaporation
0.505	manufacture of spunlaced & spunbonded non-woven fibers
0.000003	groundwater monitoring wells
0.653003	Total Discharge through IMP 01A
2.491	Spunlace non-woven fabric from pulp
1.642	Spunlace non-woven fabric from other
4.133	Total Discharge through IMP 01B
1.762	Excess water minus evaporation
0.398	Non-contact cooling water
2.104	stormwater runoff
9.05	TOTAL DISCHARGE

RECEIVING STREAM DISCHARGE ROUTE			
Outfall 001 discharges to the Cumberland River (Old Hickory Lake) at river mile 218.4. IMP 01A and IMP01B discharge to a retention pond. The pond then discharges through Outfall 001.			
STREAM LOW FLOW (CFS) *	7Q10	1Q10	30Q5
	NA	1682.72	NA
(MGD)	NA	1087.54	NA

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

Treatment: process wastewater treatment: equalization and sedimentation, activated sludge, chemical conditioning, floatation thickening, and aerobic digestion, sludge to POTW

* Reference 1Q10: Old Hickory Dam Flow release data provided by TVA for 2000-2021 and calculated by TDEC.

1. FACILITY DISCHARGES AND RECEIVING STREAM INFORMATION

Receiving Waterbody:	Cumberland River (Old Hickory Reservoir) at mile 218.4 for Outfall 001			
Watershed Group:	Cumberland-Lower-Sycamore (Cheatham Lake)			
Hydrocode:	05130202			
Primary Outfall Latitude:	36.2775			
Primary Outfall Longitude:	-86.6497			
Low Flow:	1Q10 = 1087.54 MGD (1682.72 CFS)			
Low Flow Reference:	Old Hickory Dam Flow Release Data 2000-2021			
Stream Designated Uses:	<i>Domestic Water Supply</i>	<i>Industrial</i>	<i>Fish & Aquatic Life</i>	<i>Recreation</i>
	X	X	X	X
	<i>Livestock & Wildlife</i>	<i>Irrigation</i>	<i>Navigation</i>	<i>Trout</i>
	X	X	X	

Sontara Old Hickory, Inc. (formerly Dupont) is located in Old Hickory, Tennessee. The site contains two industrial companies: Fiberweb (Berry Global), which discharges through internal monitoring point (IMP) 01A, and Sontara which discharges through IMP 01A and IMP 01B. Dupont ceased all production, biological and chemical treatment, and transferred ownership to Sontara in 2019. Dupont is responsible for all decommissioning and remediation activities (such as groundwater remediation) that may still occur on site per the Resource Conservation and Recovery Act (RCRA).

Sontara Old Hickory, Inc. manufactures fabric using the spunlace process from synthetic fibers made offsite which are mechanically bonded. No thermal or chemical bonding occurs to make the fabric, but the process does include a high pressure water jet process to bind the fibers and paper together. Sontara has 3 production wastewater lines. Lines 1 & 2 consisting of screw press and filter backwash, are treated and then discharge to outfall IMP 01A. Ten percent (10%) of the water in Line 1 is reused and recycled through the system. Lines 1, 2 & 3 involve various process wastewaters and are treated before discharging to outfall IMP 01B. See the process flow diagram in Appendix 5 for further details.

Sontara Old Hickory, Inc. discharges treated screw press and filter backwash process wastewater (via IMP 01A), treated process wastewater (via IMP 01B), treated groundwater, filter press filtrate, miscellaneous cooling and non-process wastewaters and storm water runoff through Outfall 001; and operates a cooling water intake structure to Cumberland River (Old Hickory Reservoir) at mile 218.4



from Outfall 001. The various wastewater flows and stormwater runoff discharge into a retention basin on site before discharging through Outfall 001.

Treatment for IMP 01A includes equalization and sedimentation (settling) before discharging to the site retention basin. Treatment for IMP 01B involves screening, dissolved air flotation, and flocculation before discharging to the site retention basin. Further equalization and sedimentation (settling) occurs in the site retention basin before the combined effluent is discharged through Outfall 001 to the Cumberland River. All sludge from the wastewater treatment process is disposed of to a landfill.

Sontara's sanitary wastewater is discharged to Metro Water Services for treatment. [Appendix 5](#) summarizes facility discharges and the receiving stream information for the relevant outfall(s) and contains a process flow diagram.

Fiberweb (Berry Global), a separate company located on the same site, manufactures polypropylene and polyester fibers. They have a long-term average flow of 443,000 gpd and their process wastewater is treated before discharging to outfall IMP01A.

Stormwater discharges associated with the industrial activity of this facility are covered by the Tennessee Multi-Sector General Storm Water Permit TNR058900. Stormwater concerns associated with this facility are covered in the general permit and will therefore not be addressed in detail in this permit.

No Federally listed threatened or endangered species or designated critical habitat are known to exist in the vicinity of the permittee's cooling water intake. This statement is based on a review by the Tennessee Natural Heritage Program, TDEC Division of Natural Areas, communications with U.S. Fish and Wildlife Service and the Tennessee Wildlife Resources Agency.

The 1Q10 low flow of the receiving stream was calculated using the Old Hickory Dam low flow release data from 2000-2021. This low flow release data is recorded by both the Tennessee Valley Authority (TVA) and the U.S. Army Corps of Engineers (USACOE). The graph showing calculations and yearly data is located in Appendix 5.

2. CURRENT PERMIT STATUS

Issuance Date:	October 31, 2019
Expiration Date:	December 31, 2020
Effective Date:	December 1, 2019

3. APPLICABLE EFFLUENT LIMITATIONS GUIDELINES

IMP01A

Process wastewaters discharged through the internal monitoring point (IMP) 01A are regulated by applicable best practicable control technology (BPT) ELGs for facilities classified under Organic Chemicals, Plastics, and Synthetic Fibers (OCPSF):

- Berry Global (Fiberweb and Power): 40 CFR Part 414.31, Subpart C – Other Fibers. Parameters limited include BOD5, TSS, and pH.

After reviewing the application data results for Sulfide, Phenol, and Total Chromium, the Division has continued to exclude limit reporting for these parameters due to results being below detection level. The permittee's discharge has no reasonable potential to adversely affect water quality with these parameters. See Appendix 3 for calculations.

The permittee shall notify the Division of Water Resources as soon as it knows or has reason to believe that any activity has occurred or will occur which would result in the discharge on a routine or frequent basis, or non-routine or infrequent basis, of any pollutants which presence in the effluent would invalidate effluent certification as a waiver of sampling requirements for guideline-listed pollutants. Any changes to facility operations that may result in discharges above the levels reported as a part of the certification should be reported according to 40 CFR 122.41(l)(2).

IMP01B

Process wastewaters discharged through the internal monitoring point 01B are regulated by applicable best practicable control technology (BPT) ELGs:

- Sontara Old Hickory, Inc. (Sontara) Line 3: 40 CFR Part 410.82, Subpart H, Nonwoven Manufacturing subcategory. Parameters limited include BOD5, COD, TSS, Sulfide, Phenol, Total Chromium, and pH.

- Sontara Lines 1 & 2: 40 CFR Part 430.122, Subpart L - Tissue, Filter, Non-Woven, and Paperboard from Purchased Pulp Subcategory for Non-Integrated Mills where Filter and Non-woven Papers are produced from purchased pulp with a continuous discharge. Parameters limited include BOD₅, TSS, and pH.

Outfall 001

There are currently no effluent limitations guidelines for the discharge of cooling waters, storm water runoff, or miscellaneous non-stormwater flows from OCPSF facilities. Applicable ELGs for IMP01A and IMP01B are provided in Appendix 2 and remain applicable from the previous permit. Provisions applicable to the non-biological treatment of wastewaters are no longer relevant.

4. PREVIOUS PERMIT TERM REVIEW

A review of the permittee's Discharge Monitoring Reports (DMRs) from 2015 to 2021 revealed that the permittee reported violations of permit limits for BOD₅ and TSS for internal monitoring points 01A and 01B. A summary of data reported on DMRs during the previous permit term is located in [Appendix 2](#).

During the previous permit term, Division personnel from the Nashville Environmental Field Office performed a Compliance Evaluation Inspection (CEI) of the permittee's facility. The CEI was performed by Jordan Fey on February 23 and March 1, 2017, and the permittee was found to be in compliance. The inspection report described Sontara (formerly DuPont) is largely in compliance, with infrequent limit exceedances and minor sample collection issues.

5. NEW PERMIT LIMITATIONS 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 4 above) 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.

- a) Language throughout the permit has been updated to reflect the eReporting Phase 2 requirements in 40 CFR § 127.



- b) For comparison, this rationale contains the previous permit limits and effluent monitoring requirements in [Appendix 1](#).
- c) The permittee requested a reduction in monitoring frequency for COD and TSS in the permit application for IMP 01B. In response, the Division conducted a review of DMRs from the previous permit cycle for the requested parameters. As shown in the DMR summary in [Appendix 2](#), the long-term monthly average of COD was 28 % of its permit limit and TSS was 21% of its permit limit; not only meeting but outperforming the established limit. Therefore, these parameters have a low probability of exceeding permit limitations. Accordingly, this permit reduces the monitoring frequency of IMP 01B for TSS from weekly to once every two months and COD from weekly to twice per month in accordance with EPA guidance¹.

Effluent limits are calculated below for Internal Monitoring Points 01A and 01B to establish compliance with ELGs prior to mixing with 4.3 MGD of non-process flows in the retention basin discharging to Outfall 001. Calculations are show below for each production process and Internal Monitoring Point to establish permit limits for each IMP and Outfall 001.

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

Outfall	40 CFR	Prod'n	Units		Fractions	Parameter	Rate lb/klb Mo. Ave	Load, lb/d	Parameter	Rate Mo. Ave	Load, lb/d
01A & 01B	430-L 430.122	96.4	klb/day	0.04	4% to 01A Spunlace Line1	BOD5	16.3	62.9	BOD5	16.3	1508.5
						TSS	13	50.1	TSS	13	1203.1
				0.96	and 96% to 01B Spunlace Line2	BOD5	29.6	114.1	BOD5	29.6	2739.3
						TSS	26.6	102.6	TSS	26.6	2461.7
01B	410-H 410.82	46.1 Spunlace Line 3	klb/day							Mo. Ave	
									BOD5	2.2	101.42
									TSS	3.1	142.91
									COD	20	922
									Sulfide	n/a	n/a
									Phenol	n/a	n/a
									Tot chromium	n/a	n/a
									Daily Max		
									BOD5	4.4	202.84
									TSS	6.2	285.82
									COD	40	1844
									Sulfide	n/a	n/a
									Phenol	n/a	n/a
									Tot chromium	n/a	n/a
01A	414-C 414.31	0.443	MGD		equals flow times concentration		Mo. Ave				
						BOD5	18	66.5			
						TSS	36	133.0			
							Daily Max				
						BOD5	48	177.3			
						TSS	115	424.9			
						IMP01A	Mo. Ave		IMP01B	Mo. Ave	
							BOD5	129.4		BOD5	1609.9
							TSS	183.1		TSS	1346.0
							COD	Report Only		COD	3938.9
						IMP01A	Daily Max		IMP01B	Daily Max	
							BOD5	291.5		BOD5	2942.1
							TSS	527.5		TSS	2747.5
							COD	Report Only		COD	7322.6

The previous two permits adjusted the effluent limit calculations for COD in IMP 01B and for TSS in both IMP 01A and 01B. In this permit, limits have been recalculated due to using more recent production rate data. These adjustments are shown below.

COD in IMP01B:

The previous permit imposed a COD limit, adjusted from the ELG calculations, of 6400.8 lb/day Daily Maximum and 3475.2 lb/day Monthly Average at IMP 01B using the same production rate in the 2011 permit of 24,500 lb/day.

- a) The justification was that ELG's from 40CFR 410.122 Subpart L only contain limits for BOD5/TSS and do not limit COD. Operating experience for this



process had determined the principal oxygen-demanding waste occurs in the form of COD rather than BOD₅.

- b) The previously agreed upon 2:1 COD to BOD₅ ratio, based on the 2010 application data from previous permits, will be retained in the renewed permit.
- c) Using a ratio of 2:1 for COD: BOD₅, based on recent plant data and literature values, the ELG loading for BOD₅ from Subpart L of 2739.3 lb/day converts to COD load of 5478.6 lb/day, Daily Maximum. Adding the calculated COD load from Subpart H of 1844 lb/day = 7322.6 lb/d Daily Maximum.
- d) The same procedure would apply for the Monthly Average calculations: 1508.5 lb/day BOD₅ converts to 3017 lb/day COD. Adding the COD load from Subpart H of 922 lb/day = 3938.9 lb/d Monthly Average.

COD in IMP01A:

Due to the principal oxygen-demanding waste occurring in the form of COD rather than BOD₅ for Subpart L, COD will continue to be reported for IMP 01A. COD sampling will continue to occur weekly.

TSS in IMP01A and 01B:

Both IMPs 01A and 01B are combined in the discharge at Outfall 001 but are individually monitored and have permit limits for TSS.

- a) An increase in the total TSS loading from 01A and 01B is proposed.
- b) The renewed permit has calculated the new TSS limits based on more recent production rates of the facility. TSS sampling will occur twice per month.

INTERNAL MONITORING POINT (IMP) 01A

IMP 01A discharges treated effluent from the physical/chemical wastewater treatment plant and other flows discussed above. The applicable limits at this IMP are

based on 2 different regulated wastewater streams, Berry Global and Sontara as follows:

- a) Process wastewaters generated from fiber production at Berry Global are regulated by 40 CFR Part 414.31, Subpart C for BOD₅/TSS/pH.
- b) Process wastewater from screw press and filter backwashes from Sontara are regulated by 40 CFR 430.122, Subpart L.

Mass limits at IMP 01A are calculated based on the process wastewater flow (allocated for each of the regulation streams) of 551,400 gpd and using the above-listed effluent limitations guidelines. The calculations and resulting limits at IMP 01A are shown below.

Description: External Outfall, Number: 01A, Monitoring: Effluent Gross, Season: All Year							
Code	Parameter	Qualifier	Value	Unit	Sample Type	Monitoring Frequency	Statistical Base
00310	BOD, 5-day, 20 C	<=	291.5	lb/d	Composite	Weekly	Daily Maximum
00310	BOD, 5-day, 20 C	<=	129.4	lb/d	Composite	Weekly	Monthly Average
00400	pH	>=	6.0	SU	Grab	Weekly	Daily Minimum
00400	pH	<=	9.0	SU	Grab	Weekly	Maximum
00530	Total Suspended Solids (TSS)	<=	527.5	lb/d	Composite	Weekly	Daily Maximum
00530	Total Suspended Solids (TSS)	<=	183.1	lb/d	Composite	Weekly	Monthly Average
50050	Flow	Report	-	MGD	Recorder	Continuous	Daily Maximum
50050	Flow	Report	-	MGD	Recorder	Continuous	Monthly Average
81017	Chemical Oxygen Demand (COD)	Report	-	lb/d	Composite	Weekly	Daily Maximum
81017	Chemical Oxygen Demand (COD)	Report	-	lb/d	Composite	Weekly	Monthly Average

Internal Monitoring Point (IMP) 01B

Effluent discharged at IMP 01B with flow rate of 4.133 MGD originates from a manufacturing process of Sontara® non-woven fabric prior to discharge through a retention basin and Outfall 001.

With the permit renewal application, Sontara provided an updated water balance diagram. Sontara's production discharges of process wastewater from Lines 2 and 3 to 01B are shown as 4.133 MGD. Production estimates are shown at 96,400 lb/day of pulp/paper and 46,100 lb/day of nonwoven fibers. Per the permit application, wastewater from Sontara® manufacturing process is regulated at IMP 01B based on the ELGs listed in 40 CFR 430.22, Subpart L, Tissue, Filter, Non-Woven, and

Paperboard from Purchased Pulp Subcategory and 40 CFR 410.82, Subpart H, Nonwoven Manufacturing. This rule has flow-based limits for COD, sulfide, phenols, and total chromium. Information provided in the renewal application states that no thermal or chemical bonding is used during the mechanical production process, thus no sources which could introduce sulfide, phenol, or chromium. These substances are reported as non-detectable in the 2020 permit application; thus, no permit limits are applicable.

This renewed permit finds that 40 CFR 430.122, Subpart L and H are appropriate to regulate this waste stream. Proposed effluent limits for Outfall 01B are based upon 96,400 lbs/day of pulp (paper) and 46,100 lbs/day of nonwoven fabric, for which a small portion, approx. 4%, is routed through IMP01A.

Description: External Outfall, Number: 01B, Monitoring: Effluent Gross, Season: All Year

Code	Parameter	Qualifier	Value	Unit	Sample Type	Monitoring Frequency	Statistical Base
00310	BOD, 5-day, 20 C	<=	2942.1	lb/d	Composite	Weekly	Daily Maximum
00310	BOD, 5-day, 20 C	<=	1609.9	lb/d	Composite	Weekly	Monthly Average
00400	pH	>=	6.0	SU	Grab	Weekly	Daily Minimum
00400	pH	<=	9.0	SU	Grab	Weekly	Maximum
00530	Total Suspended Solids (TSS)	<=	2747.5	lb/d	Composite	Once Every Two Months	Daily Maximum
00530	Total Suspended Solids (TSS)	<=	1346.0	lb/d	Composite	Once Every Two Months	Monthly Average
50050	Flow	Report	-	MGD	Continuous	Weekly	Daily Maximum
50050	Flow	Report	-	MGD	Continuous	Weekly	Monthly Average
81017	Chemical Oxygen Demand (COD)	<=	7322.6	lb/d	Composite	Twice Per Month	Daily Maximum
81017	Chemical Oxygen Demand (COD)	<=	3938.9	lb/d	Composite	Twice Per Month	Monthly Average

Outfall 001

FLOW

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

5.1. METALS AND TOXICS

Based on analytical data from Form 2C, the discharge through Outfall 001 does not exhibit the reasonable potential to violate water quality. Effluent permit limits for metals and toxics were calculated as shown in [Appendix 3](#).

5.2. TOTAL ORGANIC CARBON (TOC)

Total Organic Carbon (TOC) Total Organic Carbon test measures organically bound carbon in a water or wastewater samples. The State of Tennessee Water Quality Standards [Chapter 1200-4-3-.03] do not promulgate specific numeric criteria for TOC. Nevertheless, TOC testing is commonly used for monitoring presence of organic pollutants in industrial effluents, and it will be retained in the new permit on a report basis. The monitoring frequency will be weekly, and the sample type will be grab, since the pond effluent is considered completely mixed.

5.3. TOTAL SUSPENDED SOLIDS (TSS)

Monitoring for Total Suspended Solids (TSS) was on “report” only basis during the previous permit term, since TBEL-based reporting is established above for upstream process wastewater discharges. The monitoring frequency is retained at monthly on a grab sample, since the pond effluent is completely mixed.

5.4. 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 not fluctuate more than 1.0 unit over a period of 24 hours and shall not be outside the following ranges: 6.0 – 9.0 standard units (SU) in wadeable streams and 6.5 – 9.0 SU in larger rivers, lakes, reservoirs, and wetlands. Considering that the receiving stream will provide some buffering capacity, effluent limitation for pH will be retained in a range 6.0 to 9.0. The sample type will be grab.

5.5. AMMONIA (NH₃-N)

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

The temperature used in calculations is determined based on measured ambient instream temperature or is estimated according to Tennessee’s Three Grand



Divisions as follows: East (winter 15°C, summer 25°C), Middle (winter 17°C, summer 27°C), and West (winter 20°C, summer 30°C). A pH value of 8 (instead of historically used 7.5) is used because ambient monitoring in West Tennessee showed that pH often exceeds 7.5 and is sometimes as high as 8, and because this assumption is more conservative.

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

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

and

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

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

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

where:

CCC	=	Criteria continuous concentration (mg/L)
Q _S	=	7Q10 flow of receiving stream (MGD)
Q _{STP}	=	Design flow of STP (MGD)
C _S	=	Assumed/Measured instream NH ₃ (mg/L)
C _{STP}	=	Allowable STP discharge of NH ₃ (mg/L)

See below for calculations:

CCC Calculation: Chronic Limits			
Winter		Summer	
Temp (°C)=	17	Temp (°C)=	27
pH=	8	pH=	8
MAX Expression	17.0000	MAX Expression	27.0000
Winter CCC=	0.94	Summer CCC=	0.49
CCC - Continuous Chronic Criterion Allowable instream NH3 concentration [mg/l]			
$CCC = \frac{(\text{Critical Low Flow [MGD]} * \text{Background Ammonia [mg/L]}) + (\text{Design Flow [MGD]} * \text{Effluent Concentration [mg/L]})}{(\text{Critical Low Flow [MGD]} + (\text{Design Flow [MGD]})}$			
where:			
	1087.5	Critical Low Flow [MGD] (1Q10 value)	
	0.1	Background Ammonia Concentration [mg/L]	
	9.05	WWTP Design Flow or long-term average flow [MGD]	
Therefore, the Allowable Effluent Concentrations and corresponding Amounts in winter and summer are:			
Winter		Summer	
102.23	Concentration [mg/L]	47.941	Concentration [mg/L]
7716.0	Amount [lb/day]	3618.4	Amount [lb/day]

CMC Calculation: Acute Limits			
Winter		Summer	
Temp (°C)=	17	Temp (°C)=	27
pH=	8	pH=	8
MAX Expression	17.0000	MAX Expression	27.0000
Winter CMC=	5.01	Summer CMC=	2.19
CMC - Continuous Maximum Criterion Allowable instream NH3 concentration [mg/l]			
$CMC = \frac{(\text{Critical Low Flow [MGD]} * \text{Background Ammonia [mg/L]}) + (\text{Design Flow [MGD]} * \text{Effluent Concentration [mg/L]})}{(\text{Critical Low Flow [MGD]} + (\text{Design Flow [MGD]})}$			
where:			
	1087.5	Critical Low Flow [MGD] (7Q10 value)	
	0.1	Background Ammonia Concentration [mg/L]	
	9.05	WWTP Design Flow or long-term average flow [MGD]	
Therefore, the Allowable Effluent Concentrations and corresponding Amounts in winter and summer are:			
Winter		Summer	
594.64	Concentration [mg/L]	252.799	Concentration [mg/L]
44881.8	Amount [lb/day]	19080.5	Amount [lb/day]

The renewed application data for Ammonia reported a value of <0.250 mg/l in the effluent. Ammonia limits will not be included, due to there being no reasonable potential of adversely affecting water quality of the receiving stream.

5.6. BIOMONITORING

As shown on the 2020 permit renewal application and 2016-2021 effluent data reporting, most toxic substances are reported at or below the detection limit.

-Semi-volatile compounds present at levels of concern in previous permits were so low that limits and monitoring were removed from the previous permit.



-The concentrations of toxic metals in the 2020 application are less than the detection limit at Outfall 001.

Although Outfall 001 contains low levels of several different pollutants, the combined effect can potentially have a detrimental effect to fish and aquatic life. Thus, limited biomonitoring is warranted. The renewed permit will require WET testing once-per-permit as described below.

The discharge of industrial wastewater from Outfall 001 may contain several different pollutants, the combined effect of which has a reasonable potential to be detrimental to fish and aquatic life. The Division evaluates all discharges for reasonable potential to exceed the narrative water quality criterion "no toxics in toxic amounts".

In cases where a discharger has characterized its effluent via toxicity test methods acceptable to the Division, reasonable potential to exceed the criterion is evaluated using the following rationale.

EPA's [Technical Support Document for Water Quality Based Toxics Control](#) (TSD) recommends that the evaluation of both acute and chronic toxicity be based on the number of observations in the data set, the coefficient of variation and an uncertainty factor. The uncertainty factor value is taken from a chart in the technical support document and the coefficient of variation (C.V.) is based on the following numbers:

Less than ten observations: C.V. = 0.6

More than ten observations: C.V. = Standard Deviation / Mean

The result of each biomonitoring test is converted to toxic units using the equations listed below:

Acute biomonitoring: $TU_a = 100 / LC_{50}$

Chronic biomonitoring: $TU_c = 100 / IC_{25}$

The highest numerical value of the acute data set (in TU_a) is multiplied by the uncertainty factor (U.F.) and the dilution factor to derive the final acute value. The highest numerical value of the chronic data set (in TU_c) is also multiplied by the uncertainty factor and the dilution factor to derive the final chronic value.

Dilution Factor (DF) = Design Flow / 1Q10

Final Acute Value = $TU_a * \text{Uncertainty Factor} * \text{Dilution Factor}$

Final Chronic Value = $TU_c * \text{Uncertainty Factor} * \text{Dilution Factor}$



The final chronic value is compared to the criteria continuous concentration (CCC) for chronic toxicity ($CCC = 1.0 \cdot TU_c$). The CCC is defined as the highest instream concentration of an effluent to which organisms can be exposed indefinitely without causing an unacceptable effect.

Since the receiving stream is the facility's water source, the following equations are used to determine whole effluent toxicity limits.

The following calculation is the required dilution at which acute toxicity testing must meet permit requirements:

$$Dilution Factor = \frac{Receiving Stream Low Flow}{Facility Discharge Average Flow} = \frac{1087.5}{9.05} = 120.2$$

$$LC_{50} \% \geq \frac{100\%}{0.3 * Dilution Factor} \geq \frac{100\%}{0.3 * 120.2} \geq 2.8\%$$

Where:

1087.5	= 1Q10 Low Flow (MGD)
9.05	= Long Term Average Flow (MGD)
0.3	= Conversion factor to toxic units, acute
LC ₅₀	= Lethality concentration to 50% of organisms

Because the receiving stream to facility discharge ratio is greater than 100:1, acute toxicity testing will apply rather than chronic toxicity testing. The acute toxicity endpoint (LC₅₀) is a *calculated* effluent concentration based on the dilution afforded to the effluent by the receiving stream at an assumed, worst-case condition (facility design flow discharging into the stream low flow). The calculated endpoint is taken to be an effluent concentration having the reasonable potential to cause acute toxicity when mixed into the receiving stream at its low flow. Because the low flow condition provides the least amount of effluent dilution, the endpoint based on it will be the *highest* concentration of an effluent ever *available* to provide acutely toxic exposure. Therefore, to demonstrate the *absence* of acutely toxic exposure, an effluent solution causing lethality in 50% or more of the organisms in a laboratory test must require an effluent concentration *in excess* of the acutely toxic concentration *available* at the condition of least dilution. Reasonable potential for toxicity will be demonstrated if the LC₅₀ established in the laboratory is *less than or equal to* the endpoint.



Therefore, WET testing will be required on 2.8% 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 once during the duration of the renewed permit for Outfall 001 and can be reported with the renewal application. The details regarding biomonitoring methodology can be found in Part III of the permit.

6. OTHER PERMIT REQUIREMENTS AND CONDITIONS

6.1. PERMIT TERM

In order to meet the target reissuance date for the Cumberland-Lower-Sycamore (Cheatham Lake) watershed and following the directives for the Watershed Management Program initiated in January 1996, the permit will be issued to expire in 2025.

6.2. ELECTRONIC REPORTING

The [NPDES Electronic Reporting Rule \(eRule\)](#), which became effective on December 21, 2016, replaces most paper-based reporting requirements with electronic reporting requirements. NetDMR allows NPDES permittees to submit DMRs electronically to EPA through a secure internet application and has been approved by Tennessee as the official electronic reporting tool for DMRs. The permittee has been reporting electronically via NetDMR since August 2016.

Monitoring results shall be recorded monthly and submitted monthly using Discharge Monitoring Reports (DMRs) based on the effluent limits in **section 1.1** of the permit. DMRs and DMR attachments, including laboratory data and overflow reports, shall be submitted electronically in [NetDMR](#) or other electronic reporting tool approved by the State, no later than the 15th of the month following the end of the monitoring period. All NPDES program reports must be signed and certified by a responsible official or a duly authorized representative, as defined in 40 CFR § 122.22.

According to 40 CFR § 127.15, states have the flexibility to grant temporary or episodic waivers from electronic reporting to NPDES permittees who are unable to meet the electronic reporting requirements. To obtain an electronic reporting waiver, an [electronic reporting waiver request](#) must be submitted by email to DWRwater.compliance@tn.gov or by mail to the following address:

*Division of Water Resources
Compliance and Enforcement Unit – NetDMR Waivers
William R. Snodgrass Tennessee Tower
312 Rosa L. Parks Avenue, 11th Floor
Nashville, TN 37243-1102*

For contact and training information about NetDMR electronic reporting, visit the Division's website [here](#).

The permit language has been modified to accommodate the implementation of the MyTDEC Forms electronic reporting tool. For more information, visit EPA's website on [eReporting requirements](#).

6.3. ANTIDegradation Statement / Water Quality Status

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

Stream determinations for this permit action are associated with the waterbody segment identified by the Division as segment ID# TN05130201001_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 Division 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.

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

Section 316(b) of the Clean Water Act requires that facilities minimize adverse environmental impacts resulting from the operation of cooling water intake structures (CWIS) by using the "best technology available" (BTA). Based on information provided in the permit application and the discussion and analysis shown below, the Division has determined that the permittee's facility *does not meet the applicable conditions in EPA rules at 40 CFR § 125, Subpart J*. The discussion below provides the rationale for this determination. Because TDEC finds that the CWIS is not subject to requirements of §§ 125.94 through 125.99, this rationale



includes a Best Professional Judgment analysis of requirements for Best Technology Available (BTA) under Section 316(b) in accordance with § 125.90(b):

“Cooling water intake structures not subject to requirements under §§ 125.94 through 125.99 or subparts I or N of this part must meet requirements under Section 316(b) of the CLA established by the Director on a case-by-case, best professional judgment (BPJ) basis.”

The permittee’s cooling water intake structure does not meet the applicability requirement for rules under CWA Section 316(b) because less than 25% of the actual intake flow is used exclusively for cooling and/or the actual intake flow is less than 2 MGD.

6.4.1. Background

Sontara’s intake structure consists of three, Layne Bowler 30” 2-stage bowl vertical turbine pumps. The screens are made of 5/8” rebar, 3.5” long spaced 2” apart and there is a fine screen with 1” mesh made of ¼” galvanized wire.

The CWA Section 316(b) [Existing Facility Final Rule](#) 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:

- a) The facility is a point source;
- b) 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
- c) 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 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 CWIS 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.

6.4.2. 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.

6.4.3. Applicability

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

- Sontara submitted a timely application on November 20, 2020 which included the information required under §122.21(r)(2) - (13).

- The application indicated a long-term average discharge of 9.05 MGD of primarily non-contact cooling water (plus stormwater and wastewater from the low volume waste treatment pond) through Outfall 001.
- According to the permit application, the facility has an average actual intake flow of approximately 7.8 MGD, with a design intake flow of 10.4 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 and water balance table below, waters used exclusively for cooling amounts to 6%, which meets the threshold for rule applicability.

Cooling Water Balance

<i>Fiberweb (Berry Global) Process 1</i>		
Once through process cooling	254,235	gpd
Cooling tower makeup	72,000	gpd
Evaporation	77,100	gpd
<i>Sontara (Jacob-Holm) Process 2</i>		
Cooling water	72,000	gpd
Total Cooling Water Used	475,335	gpd
Total Water Intake	7,800,000	gpd
% Withdrawal used exclusively for cooling	6%	

The Sontara Old Hickory cooling water intake structure does not meet the applicability requirement for rules under CWA Section 316(b) because <25% of the actual intake flow is used exclusively for cooling.

6.4.4. Best Professional Judgment Analysis and Determination of Best Technology Available

Requirement of 40 CFR 125.90 (b) This EPA rule says, although the EPA rules are not applicable to the Sontara cooling water system, the provisions of CWA Section 316b must be addressed in NPDES permits. (b) Any standard established pursuant to section 301 or section 306 of this Act and applicable to a point source shall require that the location, design, construction, and capacity of cooling water intake structures reflect the best technology available for minimizing adverse environmental impact.

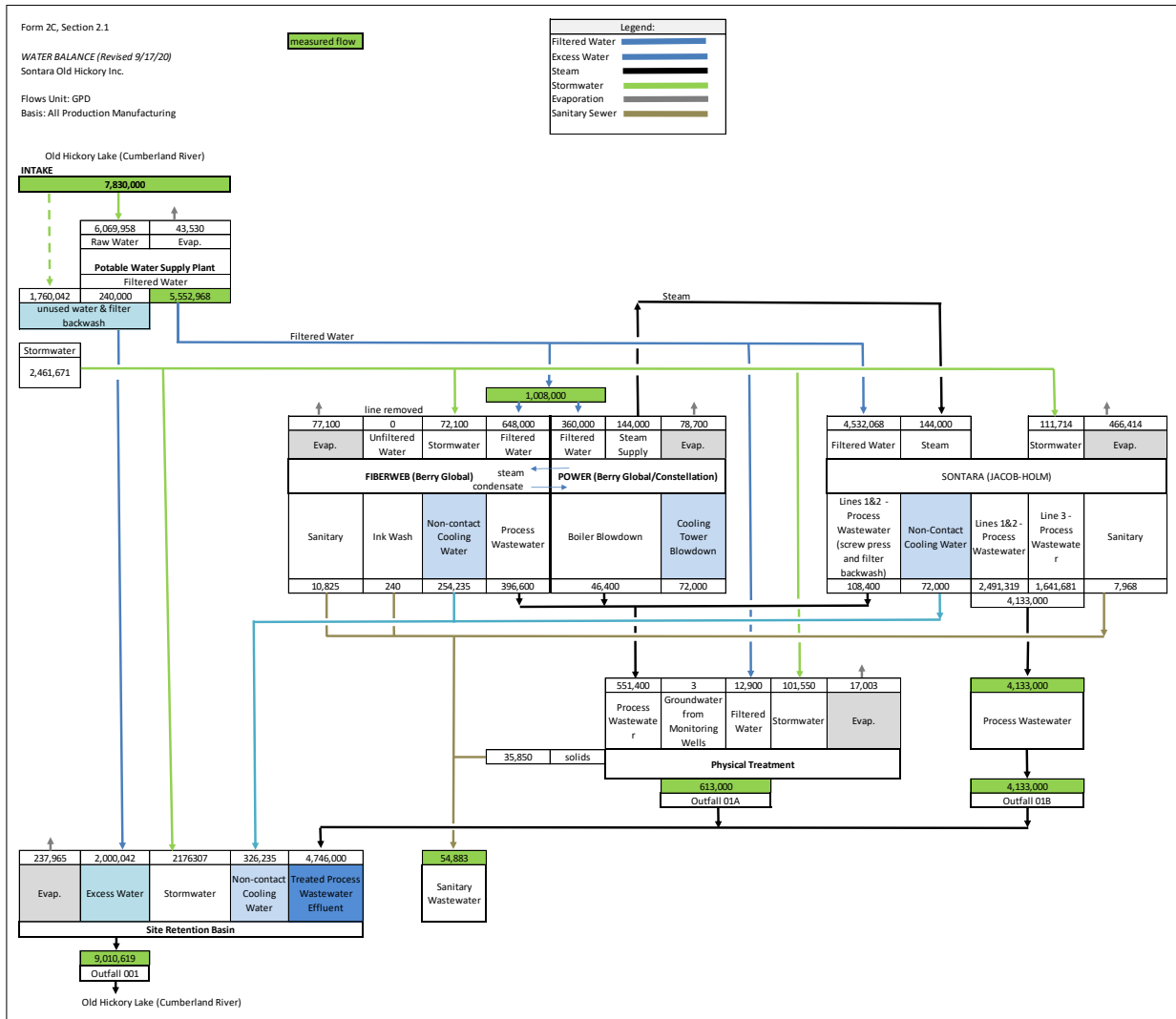
TDEC has determined that the Sontara cooling water intake structure represents the best technology available (BTA) to minimize adverse environmental impact in

accordance with Section 316(b) of the federal Clean Water Act (33 U.S.C. section 1326). This determination represents the permit writer's Best Professional Judgment and is based upon the following criteria:

- The intake design flow is a very small percentage of the 1Q10 flow for the stream where the facility is located- less than 1 percent;
- As stated above, the design intake flow is assumed to be 10.4 MGD.
- The 1Q10 stream flow used for comparison to intake flow is established at TN Rule 0400-40-03-.05(4).
- Minimum streamflow as measured at the adjacent USACE Old Hickory Dam is established (for purposes of maintaining downstream dissolved oxygen levels) during the months of May-September 2020 from 5,683 cfs-54,325 cfs with an average of 17341.1 cfs or 11,207 MGD.
- The calculated percentage of minimum stream flow represented by the Sontara intake flow is $10.4 \text{ MGD} / 3,673 \text{ MGD (5683 cfs)} = 0.28 \%$.
- The facility uses less than 25 percent of the intake flow exclusively for cooling purposes;
- With regard to entrainment only, the design intake flow is less than 5 percent of the mean annual flow of the stream;
- Mean annual low flow in the Cumberland River as measured at USACE Old Hickory Dam for the period 2000-2021 is 1,682.7 cfs or 1,087.5 MGD.
- The calculated percentage of annual average streamflow represented by Sontara intake flow is $10.4 \text{ MGD} / 1,087.5 \text{ MGD}$ is 0.96 % <<<<< 5 %.

The Division's Dataviewer website for [Exceptional Waters](#) indicates "the State Endangered Lake Sturgeon [is] found near Cordell Hull Dam". The rare species database maintained by TDEC Division of Natural Area does not contain records of Lake Sturgeon with 6 miles of the Dam. Information provided by the TN Wildlife Resources Agency indicates that, due to the large size of the species, the intake is unlikely to affect adult fish. The Division of Natural Heritage concluded that there is no concern of this intake affecting any endangered/threatened species in the vicinity.

Sontara Process Flow Diagram:





APPENDIX 1 – PREVIOUS PERMIT LIMITS

EFFLUENT LIMITS – IMP 01A						
<u>Parameter</u>	<u>Qualifier</u>	<u>Value</u>	<u>Unit</u>	<u>Sample Type</u>	<u>Frequency</u>	<u>Statistical Base</u>
BOD5	<=	258.2	lb/d	Composite	Weekly	Daily Maximum
BOD5	<=	114.3	lb/d	Composite	Weekly	Monthly Average
Flow	Report	-	MGD	Instantaneous	Weekly	Daily Maximum
Flow	Report	-	MGD	Instantaneous	Weekly	Monthly Average
Total Suspended Solids (TSS)	<=	1173.3	lb/d	Composite	Weekly	Daily Maximum
Total Suspended Solids (TSS)	<=	506.6	lb/d	Composite	Weekly	Monthly Average
pH	>=	6.0	SU	Grab	Weekly	Minimum
pH	<=	9.0	SU	Grab	Weekly	Maximum
COD	Report	-	Mg/l	Composite	Monthly	Daily Maximum
COD	Report	-	Mg/l	Composite	Monthly	Monthly Average

EFFLUENT LIMITS – IMP 01B						
<u>Parameter</u>	<u>Qualifier</u>	<u>Value</u>	<u>Unit</u>	<u>Sample Type</u>	<u>Frequency</u>	<u>Statistical Base</u>
BOD5	<=	3389.5	lb/d	Composite	Weekly	Daily Maximum
BOD5	<=	1857.7	lb/d	Composite	Weekly	Monthly Average
Flow	Report	-	MGD	Instantaneous	Weekly	Daily Maximum
Flow	Report	-	MGD	Instantaneous	Weekly	Monthly Average
Total Suspended Solids (TSS)	<=	1870	lb/d	Composite	Weekly	Daily Maximum
Total Suspended Solids (TSS)	<=	915.6	lb/d	Composite	Weekly	Monthly Average
pH	>=	6.0	SU	Grab	Weekly	Minimum
pH	<=	9.0	SU	Grab	Weekly	Maximum
COD	<=	6400.8	lb/d	Composite	Weekly	Daily Maximum
COD	<=	3475.2	lb/d	Composite	Weekly	Monthly Average

EFFLUENT LIMITS – OUTFALL 001

Parameter	Qualifier	Value	Unit	Sample Type	Frequency	Statistical Base
Carbon, Total Organic (TOC)	Report	-	mg/L	grab	Weekly	Daily Maximum
Carbon, Total Organic (TOC)	Report	-	mg/L	grab	Weekly	Monthly Average
Flow	Report	-	MGD	Recorder	Continuous	Monthly Average
Flow	Report	-	MGD	Recorder	Continuous	Daily Maximum
Total Suspended Solids (TSS)	Report	-	mg/L	grab	Monthly	Monthly Average
pH	>=	6.0	SU	Grab	Weekly	Minimum
pH	<=	9.0	SU	Grab	Weekly	Maximum
IC25 Static Renewal 7 Day Chronic Ceriodaphnia	>=	1.5	%	Composite	Once/Permit	Minimum
IC25 Static Renewal 7 Day Chronic Pimephales	>=	1.5	%	Composite	Once/Permit	Minimum

APPENDIX 2 - DMR SUMMARY

Outfall 001

TN0002259- Sontara Old Hickory, Inc.

Date	Carbon total organic matter (TCOM) mg/L	Wastely average effluent (mg/L)	Daily max. (mg/L)	Monthly or total (kg/d)	Flow, in cfs treatment effluent Gross	Wastely average (mGD)	IC25 Static Removal % Chlorophyll in Gross	Monthly average mth. (%)	IC25 Static Removal % Chlorophyll in Gross	pH, effluent Gross	Daily max. (d/s)	Wastely average or (mg/L)	Daily max. (mg/L)
01/01/2021	2.68	3.07	6.33	8.33	11.21	10.14	-	-	-	7.1	7.6	11.55	15.5
1/23/12/2020	2.92	3.6	8.61	11.21	10.69	-	-	-	-	7.3	7.6	27.1	68.6
1/26/2/2020	3.64	6.6	5.65	10.69	7.9	10.25	-	-	-	6.9	7.3	8	9
10/31/2/2020	2.43	2.53	7.9	13.84	13.84	13.84	7	7.5	8.85	14.5	24.8	24.8	24.8
09/30/2/2020	2.62	3.22	9.05	13.84	13.84	13.84	7	7.5	8.85	14.5	24.8	24.8	24.8
08/31/2/2020	2.68	2.81	8.83	10.13	10.13	10.13	6.9	7.4	18.95	29.6	29.6	29.6	29.6
07/31/2/2020	3.16	4.17	6.26	10.13	10.13	10.13	7.1	7.5	13.67	29.6	29.6	29.6	29.6
06/30/2/2020	2.43	2.71	11.41	11.41	11.41	11.41	7.3	7.6	12.4	12.4	12.4	12.4	12.4
05/31/2/2020	2.71	3.1	9.2	11.41	11.41	11.41	7.3	7.6	12.4	12.4	12.4	12.4	12.4
04/30/2/2020	2.7	3.2	6.6	12.24	12.24	12.24	7.2	7.6	4.22	6.3	6.3	6.3	6.3
03/31/2/2020	2.31	2.41	6.52	14.64	14.64	14.64	7.3	7.7	4.08	6.2	6.2	6.2	6.2
02/29/2/2020	2.64	2.71	6.24	11.12	11.12	11.12	7.2	7.6	6.4	6.1	6.1	6.1	6.1
01/31/2/2020	2.72	3.07	6.65	11.69	11.69	11.69	7.1	7.6	3.62	6.0	6.0	6.0	6.0
1/23/1/2/2019	3.26	4.39	7.67	10.69	10.69	10.69	7.2	7.6	4.15	4.0	4.0	4.0	4.0
1/26/2/2019	3.06	3.61	8.2	12.61	12.61	12.61	7.4	7.5	7.67	7.64	7.64	7.64	7.64
10/31/2/2019	2.62	3.13	8.91	12.61	12.61	12.61	7.4	7.5	7.64	7.64	7.64	7.64	7.64
09/30/2/2019	3.26	3.72	8.06	12.38	12.38	12.38	7.4	7.6	7.73	7.73	7.73	7.73	7.73
08/31/2/2019	2.97	4.06	9.51	11.75	11.75	11.75	7.2	7.5	14.55	14.55	14.55	14.55	14.55
07/31/2/2019	2.43	2.82	12.32	12.32	12.32	12.32	7.2	7.6	14.55	14.55	14.55	14.55	14.55
06/30/2/2019	2.37	2.82	8.71	16.42	16.42	16.42	7.1	7.4	5.4	5.4	5.4	5.4	5.4
05/31/2/2019	2.16	2.43	9.26	11.23	11.23	11.23	7.1	7.4	11.76	11.76	11.76	11.76	11.76
04/30/2/2019	2.36	2.63	6.06	11.66	11.66	11.66	7.1	7.4	5.25	6.25	6.25	6.25	6.25
03/31/2/2019	2.11	2.42	8.33	10.84	10.84	10.84	7	7.3	4.82	4.82	4.82	4.82	4.82
02/29/2/2019	2.16	2.35	10.54	16.65	16.65	16.65	7.2	7.3	4.63	4.63	4.63	4.63	4.63
01/31/2/2019	1.92	2.18	8.51	10.9	10.9	10.9	7.2	7.4	4.39	4.39	4.39	4.39	4.39
1/23/1/2/2018	2.27	3.02	3.69	12.46	12.46	12.46	7	7.5	6.73	6.73	6.73	6.73	6.73
1/26/2/2018	2.53	2.86	NCD - "C"	NCD - "C"	NCD - "C"	NCD - "C"	7	7.5	6.08	6.08	6.08	6.08	6.08
10/31/2/2018	2.61	3.16	4.07	6.84	6.84	6.84	7.2	7.4	5.96	5.96	5.96	5.96	5.96
09/30/2/2018	2.9	3.71	7.76	12.36	12.36	12.36	7.2	7.5	27.15	27.15	27.15	27.15	27.15
08/31/2/2018	2.62	3.25	10.33	13.74	13.74	13.74	7.3	7.5	13.75	13.75	13.75	13.75	13.75
07/31/2/2018	3.47	3.53	16.53	16.53	16.53	16.53	7.4	7.6	17.75	17.75	17.75	17.75	17.75
06/30/2/2018	2.84	3.16	10.44	12.21	12.21	12.21	6.6	7.4	8.46	8.46	8.46	8.46	8.46
05/31/2/2018	2.64	3.01	10.21	13.62	13.62	13.62	7.1	7.6	4.67	4.67	4.67	4.67	4.67
04/30/2/2018	2.73	3.3	11.32	18.22	18.22	18.22	7.1	7.6	7.5	7.5	7.5	7.5	7.5
03/31/2/2018	2.32	3.16	10.7	16.78	16.78	16.78	7.2	7.3	6.87	6.87	6.87	6.87	6.87
02/29/2/2018	4.83	6.9	11.47	16.31	16.31	16.31	7.2	7.4	5.3	5.3	5.3	5.3	5.3
01/31/2/2018	2.97	3.29	6.97	11.16	11.16	11.16	6.9	7.6	6.9	6.9	6.9	6.9	6.9
1/23/1/2/2017	2.6	2.89	8.95	16.86	16.86	16.86	7.1	7.6	6.9	6.9	6.9	6.9	6.9
1/26/2/2017	2.74	3.47	9.30	11.66	11.66	11.66	7.1	7.6	3.8	3.8	3.8	3.8	3.8
10/31/2/2017	2.61	2.82	10.2	12.7	12.7	12.7	7.1	7.6	12.4	12.4	12.4	12.4	12.4
09/30/2/2017	2.66	3	10.7	13.12	13.12	13.12	7.4	7.6	7.61	7.61	7.61	7.61	7.61
08/31/2/2017	2.42	3.2	11.5	13.42	13.42	13.42	7.3	7.6	11.72	11.72	11.72	11.72	11.72
07/31/2/2017	38.66	14.6	10.6	13.43	13.43	13.43	7.3	7.6	14	14	14	14	14
06/30/2/2017	3.42	3.97	9.86	12.3	12.3	12.3	7.3	7.6	10.6	10.6	10.6	10.6	10.6
05/31/2/2017	3.26	3.9	9.5	12.67	12.67	12.67	7.4	7.7	10.6	10.6	10.6	10.6	10.6
04/30/2/2017	2.68	3.11	9.68	14.39	14.39	14.39	7.5	7.7	5.8	5.8	5.8	5.8	5.8
03/31/2/2017	2.61	2.9	10.16	12.76	12.76	12.76	7.2	7.6	7.3	7.3	7.3	7.3	7.3
02/28/2/2017	2.26	2.64	9.68	11.36	11.36	11.36	7.2	7.6	17.2	17.2	17.2	17.2	17.2
01/31/2/2017	2.33	2.6	9.49	11.71	11.71	11.71	7.2	7.6	10.8	10.8	10.8	10.8	10.8
1/23/1/2/2016	2.43	2.64	8.76	11.11	11.11	11.11	7	7.3	13.8	13.8	13.8	13.8	13.8
1/26/2/2016	2.6	2.8	6.64	11.25	11.25	11.25	6.1	7.4	6.8	6.8	6.8	6.8	6.8
10/31/2/2016	2.34	2.64	9.64	10.97	10.97	10.97	6.9	7.3	10	10	10	10	10
09/30/2/2016	2.32	2.64	10.35	12.45	12.45	12.45	7.4	7.6	8.4	8.4	8.4	8.4	8.4
08/31/2/2016	2.7	2.66	10.89	13.46	13.46	13.46	7.4	7.6	8.6	8.6	8.6	8.6	8.6
07/31/2/2016	2.72	2.93	12.62	16.82	16.82	16.82	6.9	7.4	9.3	9.3	9.3	9.3	9.3
06/30/2/2016	2.6	3.1	10.46	12.61	12.61	12.61	6.9	7.4	7.4	7.4	7.4	7.4	7.4
05/31/2/2016	2.89	3.02	9.72	13.65	13.65	13.65	7	7.6	38.8	38.8	38.8	38.8	38.8
04/30/2/2016	2.61	3.6	6.64	11	11	11	7	6.1	4.4	4.4	4.4	4.4	4.4
03/31/2/2016	2.14	2.22	11.02	15.66	15.66	15.66	7.4	7.7	2.8	2.8	2.8	2.8	2.8
02/29/2/2016	2.23	2.45	11.2	14.8	14.8	14.8	9	NCD B	7.6	7.6	7.6	7.6	7.6

Outfall 01A

Date	BOD ₅ & TSS Effluent Conc (lb/d)	Weekly or daily (lb/d)	Percent exceedance	Monthly or total (lb/d)	Weekly or daily (lb/d)	Monthly average or min. (mg/L)	Weekly average or max. (mg/L)	Daily max. (mg/L)	Percent exceedance	Flow, ft ³ /s at treatment plant, ft ³ /sec	Monthly or daily (ft ³ /sec)	Weekly or average or min. (ft ³ /sec)	Monthly pH Effluent Gross	Daily max. (pH)	Percent exceedance	BOD ₅ , total suspended, Effluent Gross	Weekly or daily (lb/d)	Percent exceedance
01/31/2021	<42.5	37				23.2		23.2		0.9	7.97	6.8		7.8		<18	26	
12/31/2020	<31.9	80				46.7		46.7		0.83	0.79	7.1		8.1		<25	44	
11/30/2020	258.6	482	100			161		161		0.40	0.59	6.4		6.9		<48	108	
10/31/2020	28	67				<20		<20		0.83	8.77	7		7.3		<16	29	
09/30/2020	114.8	214	6			64.7		64.7		0.97	1.32	7		7.3		48	104	
08/31/2020	<260.3	660	200			<20		<20		0.92	0.86	6		7.7		711	2740	501
07/31/2020	102.8	170				47.2		47.2		0.56	0.77	6.9		7.2		60	104	
06/30/2020	<183.2	362	72			31.3		31.3		0.97	0.82	6.7		7.5		37	50	
05/31/2020	93.7	167				56.3		56.3		0.82	0.83	7.2		7.6		60	64	
04/30/2020	<70.1	111				54.4		54.4		0.6	1.29	7.2		7.7		30	74	
03/31/2020	<48.3	114				16		16		0.78	1.08	7.5		7.8		<28	44	
02/28/2020	<36.6	86				16.9		16.9		0.81	1.22	7.4		7.7		<31	66	
01/31/2020	<63.3	130				17.2		17.2		0.9	1.06	7.4		7.8		<30	54	
12/31/2019	27.1	32				21		21		0.83	1.26	7.4		7.8		<43	55	
11/30/2019	114.6	203	0			30.2		30.2		0.78	1.39	7.2		7.8		76	114	
10/31/2019	336.1	497	184			165		165		0.74	1.03	6.7		7.3		308	598	
09/30/2019	80.1	98				269		269		0.90	0.9	6.5		7		86	132	
08/31/2019	<86.9	111				40.4		40.4		0.95	0.86	6.8		7.2		98	216	
07/31/2019	<34.1	87				76.4		117		0.66	1.5	7		7.3		79	116	
06/30/2019	<27.5	72				22.3		22.3		0.81	1.34	7.2		7.5		56	91	
05/31/2019	<23.5	42				21.1		21.1		0.96	0.84	7.1		7.5		216	669	
04/30/2019	<6.8	9				<20		<20		0.33	0.56	7.2		7.5		16	22	
03/31/2019	<14.6	20				23.3		23.3		0.46	1.05	7.3		7.5		36	45	
02/28/2019	211	29				31.8		31.8		0.51	0.8	7.2		7.4		748	2653	147
01/31/2019	<21.6	68				26.9		26.9		0.4	0.6	7.1		7.4		68	169	
12/31/2018	250.7	653	168			40.4		40.4		NCM-C*	NCM-C*	6.9		7.3		468	1718	48
11/30/2018	189.3	341	48			<20		<20		0.37	0.48	6.5		7.5		269	849	
10/31/2018	<17.3	35				40.6		40.6		0.80	0.63	7.2		7.4		17	57	
09/30/2018	<4.5	6				23.3		23.3		0.16	0.33	7.3		7.6		9	9	
08/31/2018	<16.6	46				33.8		33.8		0.32	0.91	7.4		7.8		10	16	
07/31/2018	<5.9	10				28.2		28.2		0.23	0.79	7.2		7.6		11	15	
06/30/2018	62.7	114				36.2		36.2		0.29	0.79	6.8		7.4		27	41	
05/31/2018	<36.2	79				26.1		26.1		0.23	0.48	7.2		7.6		26	52	
04/30/2018	32.2	51				21.6		21.6		0.26	0.69	7.2		7.5		30	59	
03/31/2018	<56	102				33.8		33.8		0.71	1.08	7.1		7.3		75	168	
02/28/2018	75.2	140				22.9		22.9		0.97	1.44	7.4		7.5		242	400	
01/31/2018	82.7	186				<56.3		66.3		0.67	1.05	7		7.4		33	65	
12/31/2017	<14.6	22				22.3		22.3		0.72	1.34	7.2		7.5		33	52	
11/30/2017	<44.7	156				34.3		34.3		0.84	0.9	7.1		7.8		131	565	
10/31/2017	<183.8	230	34			23.2		23.2		0.82	0.83	7.1		7.6		72	121	
09/30/2017	<19.3	36				<20		<20		0.75	1.22	7.4		7.6		36	46	
08/31/2017	24.3	36				22.2		22.2		0.74	1.16	7.2		7.7		68	139	
07/31/2017	<26.5	66				211		211		0.69	1.01	7.6		7.9		102	167	
06/30/2017	<30.3	66				23.4		23.4		0.64	0.88	7.3		7.6		80	92	
05/31/2017	<39	133				41.2		41.2		0.73	1.02	7.4		7.8		72	132	
04/30/2017	<15.1	20				24.8		24.8		0.82	1	7.6		7.8		37	47	
03/31/2017	<21.7	49				<20		<20		0.79	1.12	7.1		7.4		28	39	
02/28/2017	<10.4	14				<20		<20		0.88	1.04	7.1		7.7		24	32	
01/31/2017	<14.5	16				<20		<20		0.75	1.16	7.2		7.7		63	72	
12/31/2016	<13	14				<20		<20		0.75	0.86	7.2		7.4		40	72	
11/30/2016	<20.5	36				21.9		21.9		0.84	1.26	6.8		7.6		77	319	
10/31/2016	<8.6	<10.2				<20		<20		0.83	0.77	7.2		7.4		25	27	
09/30/2016	43.5	137				<20		<20		0.93	0.88	7.1		7.8		46	79	
08/31/2016	<40.3	144				<20		<20		0.76	1.18	6.5		7.8		78	163	
07/31/2016	27	41				21		21		1.22	6.6	7		7.8		215	262	
06/30/2016	28.6	37				26.7		26.7		0.69	0.86	6.8		7.3		108	250	
05/31/2016	<39	133				41.2		41.2		0.73	1.02	7.4		7.8		72	132	
04/30/2016	NCM-B	151				20.9		20.9		0.87	0.84	7.3		7.7		91	187	
03/31/2016	NCM-B	9				NCM-B		83		0.46	0.6	7.3		7.7		21	38	
02/28/2016	NCM-B	15				261		261		0.69	1.11	7.5		7.8		81	224	

Outfall 01B

	BOD ₅ , 5-day, 20°C Effluent Gross			Chemical Oxygen Demand (COD) Effluent Gross	Flow, in conduit or treatment plant, Effluent Gross		pH, Effluent Gross			Solids, total suspended, Effluent Gross		
	Monthly or total (lb/d)	Weekly or daily (lb/d)	Percent exceedance	Monthly or total (lb/d)	Monthly or total (MGD)	Weekly or daily (MGD)	Monthly average or min. (SD)	Daily max. (SU)	Percent exceedan ce	Monthly or total (lb/d)	Weekly or daily (lb/d)	Percent exceedance
01/31/2021	< 114	145		1525	< 4006	3.79	5	7.9	8.2	911	3092	19
12/31/2020	< 114	139		< 962	< 369	4.2		7.8	8.4	574	339	
11/30/2020	< 144	378		< 1097	NOD ***G**	NOD ***G**		7.7	7.9	229	1989	
10/31/2020	< 73	< 105		< 438	< 610	NOD ***G**	NOD ***G**	7.6	8	134	324	
09/30/2020	< 187	412		< 807	< 1052	4.45	6.72	7.6	8.1	< 160	< 265	
08/31/2020	192	368		< 604	< 889	4	6.33	7.7	8	342	912	
07/31/2020	175	238		< 1292	< 3342	3.96	5.51	7.6	8.1	140	218	
06/30/2020	208	278		< 675	< 745	4.01	5.34	7.6	8.1	< 153	< 183	
05/31/2020	198	362		< 750	< 882	4.05	5.29	7.6	8	178	253	
04/30/2020	< 166	229		< 677	< 804	4.03	5.46	7.6	7.9	622	1511	
03/31/2020	< 143	161		< 467	702	4.47	6.27	7.6	8.1	< 169	266	
02/29/2020	< 92	111		< 402	631	3.01	4.76	7.6	7.8	< 115	142	
01/31/2020	< 131	225		< 435	774	3.54	5.08	7.7	8	< 93	162	
12/31/2019	< 109	161		< 386	744	3.42	4.97	7.6	8	< 168	204	
11/30/2019	< 165	223		< 400	609	3.57	4.91	7.9	8.1	< 126	234	
10/31/2019	< 120	151		< 377	529	3.5	5.3	7.9	7.9	< 65	< 94	
09/30/2019	< 151	245		689	800	3.39	4.38	7.8	8.2	183	486	
08/31/2019	< 76	107		< 400	778	2.96	4.64	7.8	8	47	71	
07/31/2019	< 201	817		< 1530	3228	2.82	3.83	7.7	8	89	184	
06/30/2019	< 72	133		< 604	< 859	3.14	5.15	7.6	7.9	122	258	
05/31/2019	< 67	84		< 648	816	3.89	5.18	7.7	8	188	325	
04/30/2019	< 81	166		< 645	813	3.43	4.87	7.7	7.8	205	420	
03/31/2019	< 61	69		< 612	812	3.24	4.29	7.6	7.9	261	568	
02/28/2019	< 48	< 58		724	873	3.49	4.81	7.7	7.9	117	254	
01/31/2019	< 89	< 80		< 865	1074	3.98	5.11	7.8	8	183	237	
12/31/2018	< 37	< 65		< 611	840	NOD ***G**	NOD ***G**	7.6	8.1	97	176	
11/30/2018	< 1382	5351	58	< 599	< 825	3.88	5.09	7.7	8.1	177	362	
10/31/2018	< 65	72		< 708	749	4.05	4.65	7.7	7.9	173	330	
09/30/2018	< 49	< 58		< 563	805	3.13	4.49	7.7	8	122	243	
08/31/2018	< 67	90		< 629	836	3.47	4.54	7.6	8.2	167	309	
07/31/2018	< 65	101		< 1413	3951	3.53	4.88	7.9	8.1	897	3346	79
06/30/2018	< 689	1301		747	873	3.53	4.59	8	8.1	138	222	
05/31/2018	< 372	1410		< 575	< 685	3.34	4.68	7.9	8.1	230	348	
04/30/2018	< 73	86		< 705	764	4.12	5.16	7.9	8	285	489	
03/31/2018	< 220	639		< 789	< 802	4.38	5.69	7.4	7.8	141	189	
02/28/2018	< 111	208		< 675	740	3.7	4.46	7.6	8.1	373	927	
01/31/2018	< 138	274		< 599	663	2.88	3.92	7.6	8.2	171	315	
12/31/2017	< 66	112		< 461	< 643	2.83	3.88	7.6	8.2	163	267	
11/30/2017	< 44	62		< 470	619	2.77	3.71	7.7	8.2	134	316	
10/31/2017	< 88	88		< 565	748	3.23	4.1	7.9	8.1	183	314	
09/30/2017	< 66	125		< 477	758	2.88	4.54	8	8.1	156	409	
08/31/2017	< 130	213		< 559	1071	4.34	6.19	8	8.1	322	377	
07/31/2017	< 136	287		< 589	1187	3.84	5.11	7.9	8.2	423	609	
06/30/2017	< 91	157		< 732	983	4.44	5.28	7.9	8.1	349	620	
05/31/2017	< 102	164		< 737	1193	3.75	4.97	7.7	8.2	482	891	
04/30/2017	< 122	188		< 733	875	3.97	5.25	7.6	8.4	467	865	
03/31/2017	< 89	< 70		< 614	793	3.49	4.6	7.9	8.1	383	1140	
02/28/2017	< 45	< 55		< 790	1390	3.06	4.54	7.8	8.1	579	1064	
01/31/2017	< 59	100		643	846	2.87	3.47	7.9	8.1	398	565	
12/31/2016	< 64	105		< 535	668	2.62	3.41	7.4	7.9	382	766	
11/30/2016	< 91	< 61		< 591	742	3.38	4.05	6.6	7.3	335	464	
10/31/2016	< 212	705		< 582	< 534	3	3.64	6.5	7.4	248	505	
09/30/2016	< 528	1914		< 702	843	4.37	4.7	7.5	8	341	863	
08/31/2016	< 150	384		932	1039	4.7	4.7	6.9	8.1	312	431	
07/31/2016	< 121	155		< 802	937	4.7	5.26	6.9	8.1	240	357	
06/30/2016	< 84	119		< 790	1189	3.96	5.47	7.4	8	213	337	
05/31/2016	< 102	164		< 737	1193	3.75	4.87	7.7	8.2	482	891	
04/30/2016	NOD B	99		NOD B	986	4.91	0	6.1	8.2	438	661	
03/31/2016	NOD B	NOD B		NOD B	1287	4.79	6.08	7.6	8.2	224	337	
02/29/2016	NOD B	2942	1	NOD B	1258	4.15	5.74	7.8	8.2	310	668	

Violations Report Summary

Permittee Name:				Sontara Old Hickory, Inc.				Primary SIC Code:				2297				Permit Issued:				10/31/2019			
Permittee Address:				326 Swinging Bridge Road Old Hickory, TN 37138				Primary SIC Desc:				Nonwoven Fabrics				Permit Effective:				12/01/2019			
Major/Minor Indicator:				Major				Primary NAICS Desc:								Permit Expiration:				12/31/2020			
Compliance Track, Status On				Major				Cognizant Official:				Lee Guthrie				Permit Status:				Admin Continued			
DMR Non Receipt Flag:				On				Cognizant Offic. Ph.:				615-526-2283											
RNC Tracking Flag:				On				Receiving Body:				Cumberland-Low er Sycamore (Cheatham Lake)											
Facility Information																							
Facility Name:				SONTARA OLD HICKORY F.K.A. E L				County:				Davidson				FRS ID:				110000370544			
Facility Location:				DUFONT DE NEMOURS 326 SWINGING BRIDGE ROAD N HICKORY, TN 37138				Region:				NA				Facility Type or Ownership:				N Privately Owned Facility			
Effluent Violations																							
Violation Code	Monitoring Period End Date	Limit Set	Parameter	Mon. Loc.	Seas. ID	SNC Group	EA Identifier	Value Type/ Stat. Base	Reported Value/Units	% Exceed.	Limit Value/Units	RNC Det. Code/ RNC Det. Date	RNC Res. Code/ RNC Res. Date										
E90	01/30/2020	01B-G	00530 - Solids, total	1	0	1		Q2	3.092 b/d	19%	<=2.588 lb/d												
									DAILY MX														
E90	11/30/2020	01A-G	00310 - BOD 5- day, 20 deg. C	1	0	1		Q1	218.9 b/d	107%	<=105.7 lb/d	T											
									MOA.VG														
E90	11/30/2020	01A-G	00310 - BOD 5- day, 20 deg. C	1	0	1		Q2	482 b/d	99%	<=242.6 lb/d												
									DAILY MX														
E90	09/30/2020	01A-G	00310 - BOD 5- day, 20 deg. C	1	0	1		Q1	114.8 b/d	9%	<=105.7 lb/d	V											
									MOA.VG														
E90	08/31/2020	01A-G	00310 - BOD 5- day, 20 deg. C	1	0	1		Q1	<260.3 b/d	146%	<=105.7 lb/d	T											
									MOA.VG														
E90	08/31/2020	01A-G	00310 - BOD 5- day, 20 deg. C	1	0	1		Q2	850 b/d	250%	<=242.6 lb/d												
									DAILY MX														
E90	08/31/2020	01A-G	00530 - Solids, total	1	0	1		Q1	711 b/d	356%	<=155.9 lb/d												
									MOA.VG														
E90	08/31/2020	01A-G	00530 - Solids, total	1	0	1		Q2	2,740 b/d	501%	<=455.7 lb/d												
									DAILY MX														
E90	06/30/2020	01A-G	00310 - BOD 5- day, 20 deg. C	1	0	1		Q1	<182.2 b/d	72%	<=105.7 lb/d	T											
									MOA.VG														
E90	06/30/2020	01A-G	00310 - BOD 5- day, 20 deg. C	1	0	1		Q2	392 b/d	62%	<=242.6 lb/d												
									DAILY MX														
E90	11/30/2019	01A-G	00310 - BOD 5- day, 20 deg. C	1	0	1		Q1	114.6 b/d	0%	<=114.3 lb/d												
									MOA.VG														
E90	10/31/2019	01A-G	00310 - BOD 5- day, 20 deg. C	1	0	1		Q1	336.1 b/d	194%	<=114.3 lb/d												
									MOA.VG														
E90	10/31/2019	01A-G	00310 - BOD 5- day, 20 deg. C	1	0	1		Q2	497 b/d	92%	<=258.2 lb/d												
									DAILY MX														
E90	02/28/2019	01A-G	00530 - Solids, total	1	0	1		Q1	749 b/d	48%	<=506.6 lb/d												
									MOA.VG														
E90	02/28/2019	01A-G	00530 - Solids, total	1	0	1		Q2	2,903 b/d	147%	<=1,173.3 lb/d												
									DAILY MX														
E90	12/31/2018	01A-G	00310 - BOD 5- day, 20 deg. C	1	0	1		Q1	200.7 b/d	76%	<=114.3 lb/d	T											
									MOA.VG														
E90	12/31/2018	01A-G	00310 - BOD 5- day, 20 deg. C	1	0	1		Q2	693 b/d	188%	<=258.2 lb/d												
									DAILY MX														
E90	12/31/2018	01A-G	00530 - Solids, total	1	0	1		Q2	1,718 b/d	46%	<=1,173.3 lb/d												
									DAILY MX														
E90	11/30/2018	01A-G	00310 - BOD 5- day, 20 deg. C	1	0	1		Q1	169.3 b/d	48%	<=114.3 lb/d	T											
									MOA.VG														
E90	11/30/2018	01A-G	00310 - BOD 5- day, 20 deg. C	1	0	1		Q2	341 b/d	32%	<=258.2 lb/d												
									DAILY MX														
E90	11/30/2018	01B-G	00310 - BOD 5- day, 20 deg. C	1	0	1		Q2	5,351 b/d	58%	<=3,389.5 lb/d												
									DAILY MX														
E90	07/31/2018	01B-G	00530 - Solids, total	1	0	1		Q1	937 b/d	2%	<=915.6 lb/d												
									MOA.VG														
E90	07/31/2018	01B-G	00530 - Solids, total	1	0	1		Q2	3,346 b/d	79%	<=1,870 lb/d												
									DAILY MX														
E90	10/31/2017	01A-G	00310 - BOD 5- day, 20 deg. C	1	0	1		Q1	<152.6 b/d	34%	<=114.3 lb/d												
									MOA.VG														
E90	02/29/2016	01B-G	00310 - BOD 5- day, 20 deg. C	1	0	1		Q2	2,842 b/d	1%	<=2,818 lb/d												

APPENDIX 3 – METALS & TOXICS CALCULATIONS

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 (1087.5 MGD, USACOA Old Hickory Dam Release Data 2000-2021)
 - Calcium hardness (96.04 mg/L, background stream data)
 - Total suspended solids (10 mg/L, default)
 - Background metals concentrations (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:

$$C_m = \frac{Q_s C_s + Q_w C_w}{Q_s + Q_w}$$

Where:

C_m = resulting instream concentration after mixing
 C_w = concentration of pollutant in wastewater
 C_s = stream background concentration
 Q_w = wastewater flow (STP Design flow)
 Q_s = stream low flow

To protect water quality:

$$C_w \leq \frac{(S_A)[C_m(Q_s + Q_w) - Q_s C_s]}{Q_w}$$

Where: S_A = 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:

30Q5 – Low flow under natural conditions

- 2) Fish and 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 available ambient monitoring information substantiates 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 (C_w). 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 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:

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

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.
- Column 15:** The Effluent Limited criteria. This upper level of allowable pollutant loading is established if (a) the calculated water quality value is greater than accepted removal efficiency values, (b) the treatment facility is properly operated, *and* (c) full compliance with the pretreatment program is demonstrated. This upper level limit is based upon EPA's 40 POTW Survey on levels of metals that should be discharged from a POTW with a properly enforced pretreatment program and considering normal coincidental removals.

The most stringent water quality effluent concentration from Columns 7, 8, 12, 13, 14, and 15 is applied if the receiving stream is designated for domestic water supply. Otherwise, the most stringent effluent concentration is chosen from columns 7, 8, 12, and 15 only.

Water Quality Based Effluent Calculations:

WATER QUALITY CALCULATIONS FOR METALS AND OTHER TOXIC SUBSTANCES WATER QUALITY BASED EFFLUENT CALCULATIONS OUTFALL 001

FACILITY: Sontara Old Hickory Inc. PERMIT #: TN0002259 DATE: 3/9/2021 CALC BY: SDM

regulated stream worksheet (1Q10)

Stream (1Q10)	Stream (3005)	Waste Flow (MGD)	Ttl. Susp. Solids (as CaCO3) (mg/l)	Hardness (as CaCO3) (mg/l)	Margin of Safety (%)
MGD	MGD	MGD	mg/l	mg/l	%
1,087.54	NA	9.05	10	96.04	50

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Stream Background Conc.	Fish/Aquatic Life (F & AL) WQC	bio conditions	Acute	Fraction Dissolved	F & AL -stream allowable ambient conditions (T0)	Chronic	Chronic based on F & AL	Organisms	Water/Organisms	DWS	Organisms	Water/Organisms	DWS	effluent case	Applicant data
PARAMETER															
Copper (a,b)	[ug/l]	8.652	12.937	0.218	39.694	59.355	2344.60	3535.75	NA	NA	NA	NA	NA	80.0	<10.0 Copper (a,b)
Chromium III	0.700	71.702	551.217	0.078	914.632	7031.331	55371.08	425952.49	NA	NA	NA	NA	NA		<10.0 Chromium III
Chromium VI	0.700	11.000	16.000	1.000	11.000	16.000	624.38	927.30	NA	NA	NA	NA	NA		<10.0 Chromium VI
Chromium Total	0.700	NA	NA	NA	NA	NA	NA	NA	NA	100.0	NA	NA	NA	60.0	<10.0 Chromium Total
Nickel (a,b)	2.373	50.259	452.501	0.206	244.260	2159.173	14655.97	133094.71	4600.0	610.0	100.0	NA	NA	180.0	<10.0 Nickel (a,b)
Cadmium (a,b)	0.264	0.697	1.734	0.193	3.615	8.998	203.13	929.28	NA	NA	5.0	NA	NA	3.0	<2.0 Cadmium (a,b)
Lead (a,b)	1.060	2.408	61.800	0.146	16.502	423.476	936.10	28592.68	NA	NA	5.0	NA	NA	45.0	<5.0 Lead (a,b)
Mercury (T) (c)	0.046	0.770	1.400	1.000	0.770	1.400	43.89	82.06	0.051	0.05	2.0	NA	NA	0.4	<0.2 Mercury (T) (c)
Silver (a,b,e)	1.500	NA	3.001	1.000	NA	3.001	NA	91.65	NA	NA	NA	NA	NA	200.0	<5.0 Silver (a,b, e)
Zinc (a,b)	2.490	114.163	113.237	0.125	913.024	905.616	55166.13	54717.33	26000.0	7400.0	NA	NA	NA	20.0	<50.0 Zinc (a,b)
Cyanide (d)	2.600	5.200	22.000	1.000	5.200	22.000	158.82	1176.65	140.0	200.0	NA	NA	NA	230.0	<5.0 Cyanide (d)
Toluene									15000.0	1300.0	1000.0	NA	NA	15.0	<1.0 Toluene
Benzene									510.0	22.0	5.0	NA	NA	3.0	<1.0 Benzene
1,1,1 Trichloroethane									NA	NA	200.0	NA	NA	30.0	<10.0 1,1,1 Trichloroethane
Ethylbenzene									2100.0	530.0	700.0	NA	NA	4.0	<1.0 Ethylbenzene
Carbon Tetrachloride									16.0	2.3	5.0	NA	NA	15.0	<1.0 Carbon Tetrachloride
Chloroform									4700.0	57.0	NA	NA	NA	85.0	<1.0 Chloroform
Tetrachloroethylene									33.0	6.9	5.0	NA	NA	25.0	<1.0 Tetrachloroethylene
Trichloroethylene									300.0	25.0	5.0	NA	NA	10.0	<1.0 Trichloroethylene
1,2 trans Dichloroethylene									10000.0	140.0	100.0	NA	NA	1.5	<1.0 1,2 trans Dichloroethylene
Methylene Chloride									5900.0	46.0	5.0	NA	NA	50.0	<1.0 Methylene Chloride
Total Phenols									860000.0	10000.0	NA	NA	NA	50.0	<1.0 Total Phenols
Naphthalene									NA	NA	NA	NA	NA	1.0	<1.0 Naphthalene
Total Phthalates									NA	NA	NA	NA	NA	64.5	<3.0 Total Phthalates
Chlorine (T, Res.)	0.000	11.000	19.000	1.000	11.000	19.000	1332.87	2302.24	NA	NA	NA	NA	NA	NA	113 Chlorine (T, Res.)

- 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 9, 10 or 11, respectively, as applicable.
g When columns 12, 13 or 14 result in a negative number, use results from columns 5 or 6, respectively.
* Domestic supply included in river use so pick from columns 7, 8, 12, 13, 14, 15 or Domestic supply not included in river use so pick from columns 7, 8, 12 or 15.
** Water Quality criteria for stream use classifications other than Fish & Aquatic Life are based on the 3005 flow.
Note: A copy of this spreadsheet can be found on tnhispretrialPass-through LimitsSpreadsheet's name of Control Authority.xls

APPENDIX 4 – APPLICABLE EFFLUENT LIMITATIONS GUIDELINES

OUTFALL IMP 01A

TITLE 40-PROTECTION OF ENVIRONMENT
CHAPTER I-ENVIRONMENTAL PROTECTION AGENCY (CONTINUED)

PART 414-ORGANIC CHEMICALS, PLASTICS, AND SYNTHETIC FIBERS--Table of Contents

Subpart C-Other Fibers

Sec. 414.31

Effluent limitations representing the degree of effluent reduction attainable by the application of the best practicable control technology currently available (BPT).

Except as provided in 40 CFR 125.30 through 125.32, and in 40 CFR 414.11(i) for point sources with production in two or more subcategories, any existing point source subject to this subpart must achieve discharges not exceeding the quantity (mass) determined by multiplying the process wastewater flow subject to this subpart times the concentration listed in the following table.

BPT effluent limitations \1\		
Effluent characteristics	Maximum for any one day	Maximum for monthly average
BOD5.....	48	18
TSS.....	115	36
pH.....	(\2\)	(\2\)

\1\ All units except pH are milligrams per liter.

\2\ Within the range of 6.0 to 9.0 at all times.

[52 FR 42568, Nov. 5, 1987, as amended at 57 FR 41844, Sept. 11, 1992]

OUTFALLS IMP 01A & IMP 01B

TITLE 40--PROTECTION OF ENVIRONMENT
CHAPTER I--ENVIRONMENTAL PROTECTION AGENCY (CONTINUED)

PART 430--THE PULP, PAPER, AND PAPERBOARD POINT SOURCE CATEGORY--Table of Contents

Subpart L--Tissue, Filter, Non-Woven, and Paperboard from Purchased Pulp Subcategory

Sec. 430.122 Effluent limitations representing the degree of effluent reduction attainable by the application of the best practicable control technology currently available (BPT).

Except as provided in 40 CFR 125.30 through 125.32, any existing point source subject to this subpart must achieve the following effluent limitations representing the degree of effluent reduction attainable by the application of the best practicable control technology currently available (BPT), except that non-continuous dischargers shall not be subject to the maximum day and average of 30 consecutive days limitations but shall be subject to annual average effluent limitations:

Subpart L

[BPT effluent limitations for non-integrated mills where filter and non-woven papers are produced from purchased pulp]

Kg/kg (or pounds per 1,000 lb) of product			
Continuous dischargers			
Pollutant or pollutant property	Maximum for any 1 day	Average of daily values for 30 consecutive days	Non-continuous dischargers (annual average)
BOD5.....	29.6	16.3	9.1
TSS.....	26.6	13.0	7.4
pH.....	(\1\)	(\1\)	(\1\)

\1\ Within the range of 5.0 to 9.0 at all times.

OUTFALL IMP 01B

TITLE 40-PROTECTION OF ENVIRONMENT
CHAPTER I-ENVIRONMENTAL PROTECTION AGENCY (CONTINUED)

PART 410-TEXTILE MILLS POINT SOURCE CATEGORY--Table of Contents

Subpart H-Nonwoven Manufacturing Subcategory

Sec. 410.82

Effluent limitations representing the degree of effluent reduction attainable by the application of the best practicable control technology currently available (BPT).

Except as provided in 40 CFR 125.30 through 125.32, any existing point source subject to this subpart must achieve the following effluent limitations representing the degree of effluent reduction attainable by the application of the best practicable control technology currently available (BPT):

Pollutant or pollutant property	BPT limitations	
	Maximum for any 1 day	Average of daily values for 30 consecutive days
	Kg/kg (or pounds per 1,000 lb) of product	
BOD5.....	4.4	2.2
COD.....	40.0	20.0
TSS.....	6.2	3.1
Sulfide.....	0.046	0.023
Phenol.....	0.023	0.011
Total chromium.....	0.023	0.011
pH.....	(\1\)	(\1\)

\1\ Within the range 6.0 to 9.0 at all times.

CFR PART 410 Subpart H - BPT
BPJ-based EFFLUENT LIMITS CALCULATIONS FOR BOD5 and TSS

	In 1000 lbs.	Percent production
Based on 46,100 lbs/day of product (2020 production)	46.1	100%

Total Production-based Loading = ELG Pollutant Allocation * Reported Production Rate
 BOD5 Monthly Average Example: 2.2 lb BOD5/1000lb * 46,100 lb/day = 101.42 lb BOD5/day

MONTHLY

EFFLUENT CHARACTERISTIC	SUBPART H ELG AVG. AMNT. (lb/1000 lb)	REPORTED PRODUCTION (1000 lb/day)	TOTAL AVG. AMNT. (lb/day)
BOD5	2.2	46.1	101
TSS	4.4	46.1	203

DAILY

EFFLUENT CHARACTERISTIC	SUBPART H ELG MAX. AMNT. (lb/1000 lb)	Sontara BPJ MAX. AMNT. (1000 lb/day)	TOTAL MAX. AMT. (lb/day)
BOD5	3.1	46.1	143
TSS	6.2	46.1	286

**IMP 01A - Flow Allocation Table: Typical Hydraulic Load
Expressed in % of Total Flow for Regulated Waste Streams**

Long-Term Average Flow *	SUBPART C Berry Global BPJ	SUBPART L Sontara BPJ	
[MGD]	67.8	16.5	%
0.653	0.443	0.108	MGD

*Based on the flow diagram submitted on 09/2020

CFR 443 and 430-BASED EFFLUENT LIMITS CALCULATIONS FOR BOD5 and TSS

IMP 01A example calculation for Monthly Average BOD5 limitation:

Flow allocation for SUBPART C: 68.9 % of 0.653 MGD = 0.450 MGD

Loading for SUBPART C = 18 mg/L * 8.34 * 0.45 MGD = 67.6 lb/day

Loading for SUBPART L = 1571 lb/day (see Appendix 5a)

TOTAL LOADING = 67.6+1571=1638.6 lb/day

MONTHLY

	Fiberweb-Subpart C	Sontara-BPJ Subpart L	TOTAL
EFFLUENT CHARACTERISTIC	AVG. AMNT. (lb/day)	AVG. AMNT. (lb/day)	AVG. AMNT. (lb/day)
BOD5	66.5	66.0	133
TSS	133.0	52.7	186

DAILY

	SUBPART C	Sontara-BPJ Subpart L	TOTAL
EFFLUENT CHARACTERISTIC	MAX. AMNT. (lb/day)	MAX. AMNT. (lb/day)	MAX. AMT. (lb/day)
BOD5	177.3	119.9	297
TSS	424.9	107.7	533

SONTARA ONLY

CFR PART 430 Subpart L - NSPS
BPJ-based EFFLUENT LIMITS CALCULATIONS FOR BOD5 and TSS

	In 1000 lbs.	Percent production
Based on 96,400 lbs/day of paper used (2020 production)	96.4	100%
4049 lb is used in production Line 1 & 2 that flows to IMP 01A	4.05	4.2
92158 lb is used in production Line 1 & 2 that flows to IMP 01B	92.2	95.6

Total Production-based Loading = ELG Pollutant Allocation * Reported Production Rate
BOD5 Monthly Average Example: 16.3 lb BOD5/1000lb * 96,400 lb/day = 1,571 lb BOD5/day

Total Loading to IMP 01A = Total Production-based Loading x 4.2%
BOD5 Monthly Average Example: 1571 lb BOD5/day * 4.2% = 66 lb/day

Total Loading to IMP 01B = Total Production-based Loading x 95.6%
BOD5 Monthly Average Example: 1571 lb BOD5/day * 95.6% = 1503 lb/day

MONTHLY

EFFLUENT	SUBPART L ELG AVG. AMNT.	REPORTED PRODUCTION	TOTAL AVG. AMNT.	TOTAL to IMP 01A	TOTAL to IMP 01B
CHARACTERISTIC	(lb/1000 lb)	(1000 lb/day)	(lb/day)	(lb/day)	(lb/day)
BOD5	16.3	96	1571	66	1503
TSS	13.0	96	1253	53	1199

DAILY

EFFLUENT	SUBPART L ELG MAX AMNT.	Sontara BPJ MAX AMNT.	TOTAL MAX AMT.	TOTAL to IMP 01A	TOTAL to IMP 01B
CHARACTERISTIC	(lb/1000 lb)	(1000 lb/day)	(lb/day)	(lb/day)	(lb/day)
BOD5	29.6	96	2854	120	2729
TSS	26.6	96	2565	108	2453



					01A			01B		
Outfall	40 CFR	Prod'n	Units	Fractions	Parameter	Rate	Load, lb/d	Parameter	Rate	Load, lb/d
01A & 01B	430-L 430.122	96.4	lb/klb	4% to 01A Spunlace Line1 and 96% to 01B Spunlace Line2	Mo. Ave			Mo. Ave		
					BOD5	16.3	47.1	BOD5	16.3	1524.2
					TSS	13	37.6	TSS	13	1215.6
					Daily Max			Daily Max		
					BOD5	29.6	85.6	BOD5	29.6	2767.8
					TSS	26.6	76.9	TSS	26.6	2487.3
01B	410-H 410.82	46.1 Spunlace Line 3	lb/klb					Mo. Ave		
								BOD5	2.2	101.42
								TSS	3.1	142.91
								COD	20	922
								Sulfide	n/a	n/a
								Phenol	n/a	n/a
								Tot chromium	n/a	n/a
								Daily Max		
								BOD5	4.4	202.84
								TSS	6.2	285.82
								COD	40	1844
								Sulfide	n/a	n/a
			Phenol	n/a	n/a					
			Tot chromium	n/a	n/a					
01A & 01B	414-C 414.31	0.443	MGD	equals flow times concentration	Mo. Ave					
					BOD5	18	66.5			
					TSS	36	133.0			
					Daily Max					
					BOD5	48	177.3			
					TSS	115	424.9			
PROPOSED PERMIT LIMITS					IMP01A	Mo. Ave		IMP01B	Mo. Ave	
						BOD5	113.6		BOD5	1625.6
						TSS	170.6		TSS	1358.5
						COD	94.3		COD	3970.4
					IMP01A	Daily Max		IMP01B	Daily Max	
						BOD5	262.9		BOD5	2970.7
						TSS	501.8		TSS	2773.1
						COD	171.2		COD	7379.7

APPENDIX 5 – FACILITY DISCHARGES AND LOW FLOW DETERMINATION

FACILITY DISCHARGES AND RECEIVING WATERS

OUTFALL 001	
LONGITUDE	LATITUDE
-86.6497	36.2775

FLOW (MGD)	DISCHARGE SOURCE
0.046	Process wastewater from boiler blowdown
0.102	Contact stormwater minus Evaporation
0.505	manufacture of spunlaced & spunbonded non-woven fibers
0.000003	groundwater monitoring wells
0.653003	Total Discharge through IMP 01A
2.491	Spunlace non-woven fabric from pulp
1.642	Spunlace non-woven fabric from other
4.133	Total Discharge through IMP 01B
1.762	Excess water minus evaporation
0.398	Non-contact cooling water
2.104	stormwater runoff
9.05	TOTAL DISCHARGE

RECEIVING STREAM DISCHARGE ROUTE			
Outfall 001 discharges to the Cumberland River (Old Hickory Lake) at river mile 218.4. IMP 01A and IMP01B discharge to a retention pond. The pond then discharges through Outfall 001.			
STREAM LOW FLOW (CFS) *	7Q10	1Q10	30Q5
(MGD)	NA	1682.72	NA

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

Treatment: process wastewater treatment: equalization and sedimentation, activated sludge, chemical conditioning, floatation thickening, and aerobic digestion, sludge to POTW

* Reference 1Q10: Old Hickory Dam Flow release data provided by TVA for 2000-2021 and calculated by TDEC.

Old Hickory Dam 1Q10 Low Flow Calculation 2000-2021 (Data provided by TVA/USACOE):

Count	Date	Lowflow	Probability	23
1	12/6/2008	1050	0.0434783	
2	11/15/2007	1500	0.0869565	
3	11/9/2010	2300	0.1304348	
4	4/25/2012	2358	0.173913	
5	5/21/2001	2850	0.2173913	
6	3/18/2000	3354	0.2608696	
7	11/17/2013	3358	0.3043478	
8	6/6/2009	3500	0.3478261	
9	11/26/2016	3562	0.3913043	
10	10/20/2017	3842	0.4347826	
11	5/11/2015	4133	0.4782609	
12	10/7/2002	4275	0.5217391	
13	11/13/2003	5750	0.5652174	
14	5/24/2004	7675	0.6086957	
15	6/2/2005	4271	0.6521739	
16	1/11/2006	4271	0.6956522	
17	9/4/2011	3446	0.7391304	
18	5/25/2014	4267	0.7826087	
19	7/27/2020	12167	0.826087	
20	1/21/2018	12171	0.8695652	
21	6/16/2019	12175	0.9130435	
22	2/1/2021	12333	0.9565217	

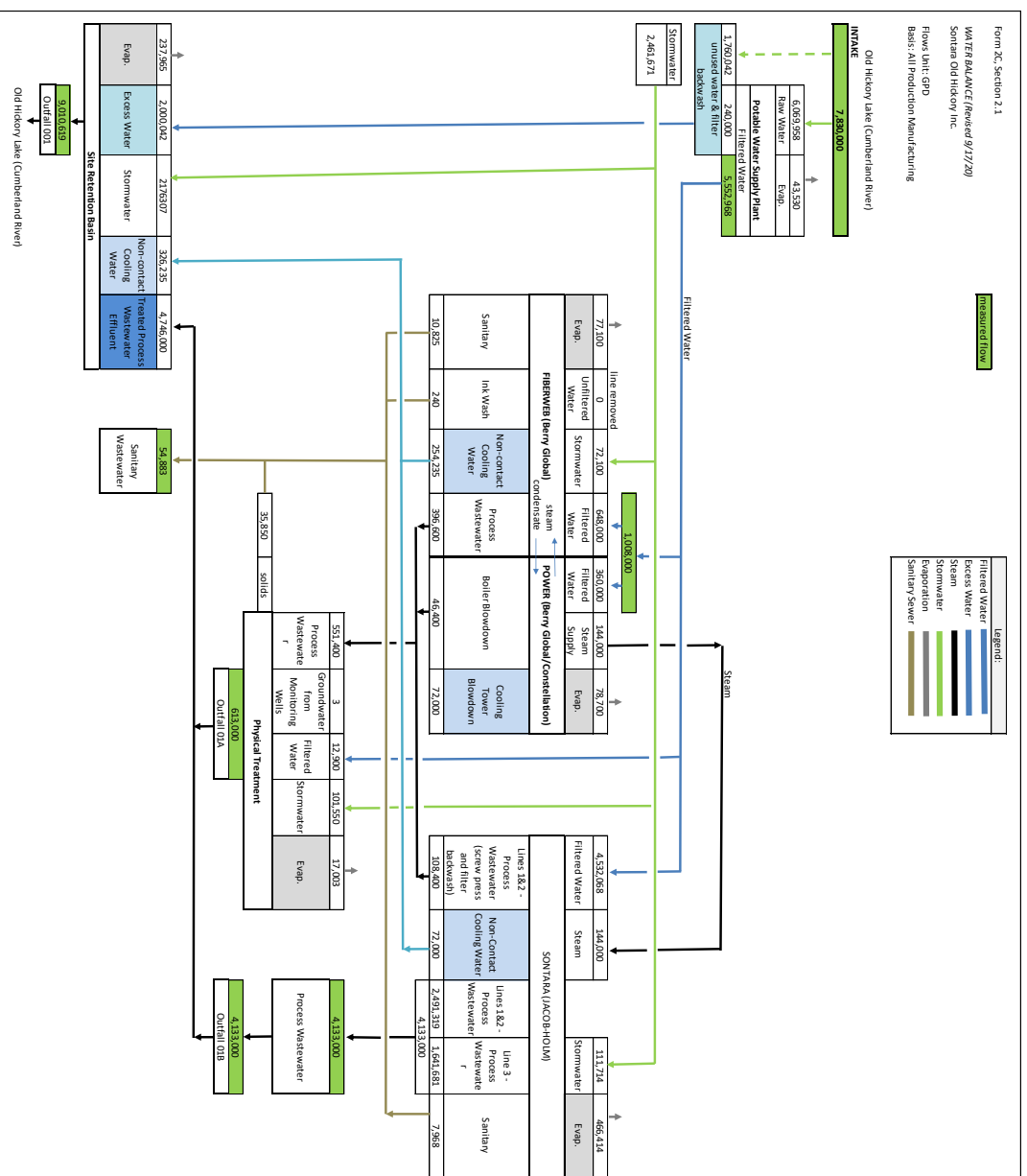
Prob Min Q

x y

0.0435	1050
0.0870	1500
0.1304	2300
0.1739	2358
0.2174	2850
0.2609	3354
0.3044	3358
0.3478	3500
0.3913	3562
0.4348	3842
0.4783	4133
0.5217	4275
0.5352	5750
0.6087	7675
0.6522	4271
0.6956	4271
0.7391	3446
0.7826	4267
0.8261	12167
0.8696	12171
0.913	12175
0.9565	12333

1Q10: 1682.72 cfs

Sontara Process Flow Diagram:



APPENDIX 6 – NEW PERMIT LIMITS

Effluent Limits- IMP 01A

<u>Code</u>	<u>Parameter</u>	<u>Qualifier</u>	<u>Value</u>	<u>Unit</u>	<u>Sample Type</u>	<u>Monitoring Frequency</u>	<u>Statistical Base</u>
00310	BOD, 5-day, 20 C	<=	291.5	lb/d	Composite	Weekly	Daily Maximum
00310	BOD, 5-day, 20 C	<=	129.4	lb/d	Composite	Weekly	Monthly Average
00400	pH	>=	6.0	SU	Grab	Weekly	Daily Minimum
00400	pH	<=	9.0	SU	Grab	Weekly	Maximum
00530	Total Suspended Solids (TSS)	<=	527.5	lb/d	Composite	Weekly	Daily Maximum
00530	Total Suspended Solids (TSS)	<=	183.1	lb/d	Composite	Weekly	Monthly Average
50050	Flow	Report	-	MGD	Recorder	Continuous	Daily Maximum
50050	Flow	Report	-	MGD	Recorder	Continuous	Monthly Average
81017	Chemical Oxygen Demand (COD)		Report	lb/d	Composite	Weekly	Daily Maximum
81017	Chemical Oxygen Demand (COD)		Report	lb/d	Composite	Weekly	Monthly Average

Monitoring Waived for Priority Pollutants- IMP 01A

After reviewing the application outfall data for Sulfide, Phenol, and Total Chromium, the Division has continued to exclude limit reporting for these parameters due to the 2020 application data reporting below detection levels. Sontara also does not use thermal or chemical bonding to make non-woven fabric. The permittee's discharge has no reasonable potential to adversely affect water quality with these parameters.

The permittee shall notify the Division of Water Resources as soon as it knows or has reason to believe that any activity has occurred or will occur which would result in the discharge on a routine or frequent basis, or non-routine or infrequent basis, of any pollutants which presence in the effluent would invalidate effluent certification dated December 3, 2004, submitted by DuPont as a waiver of sampling requirements for guideline-listed pollutants. Any changes to facility operations that may result in

discharges above the levels reported as a part of the certification should be reported according to 40 CFR 122.41(l)(2).

Effluent Limits- IMP 01B

Description: External Outfall, Number: 01B, Monitoring: Effluent Gross, Season: All Year							
<u>Code</u>	<u>Parameter</u>	<u>Qualifier</u>	<u>Value</u>	<u>Unit</u>	<u>Sample Type</u>	<u>Monitoring Frequency</u>	<u>Statistical Base</u>
00310	BOD, 5-day, 20 C	<=	2942.1	lb/d	Composite	Weekly	Daily Maximum
00310	BOD, 5-day, 20 C	<=	1609.9	lb/d	Composite	Weekly	Monthly Average
00400	pH	>=	6.0	SU	Grab	Weekly	Daily Minimum
00400	pH	<=	9.0	SU	Grab	Weekly	Maximum
00530	Total Suspended Solids (TSS)	<=	2747.5	lb/d	Composite	Once Every Two Months	Daily Maximum
00530	Total Suspended Solids (TSS)	<=	1346.0	lb/d	Composite	Once Every Two Months	Monthly Average
50050	Flow	Report	-	MGD	Continuous	Weekly	Daily Maximum
50050	Flow	Report	-	MGD	Continuous	Weekly	Monthly Average
81017	Chemical Oxygen Demand (COD)	<=	7322.6	lb/d	Composite	Twice Per Month	Daily Maximum
81017	Chemical Oxygen Demand (COD)	<=	3938.9	lb/d	Composite	Twice Per Month	Monthly Average



Effluent Limits- Outfall 001

Description: External Outfall, Number: 001, Monitoring: Effluent Gross, Season: All Year

Code	Parameter	Qualifier	Value	Unit	Sample Type	Monitoring Frequency	Statistical Base
00400	pH	>=	6.0	SU	Grab	Weekly	Daily Minimum
00400	pH	<=	9.0	SU	Grab	Weekly	Maximum
00530	Total Suspended Solids (TSS)	Report	-	mg/L	Grab	Monthly	Daily Maximum
00530	Total Suspended Solids (TSS)	Report	-	mg/L	Grab	Monthly	Monthly Average
00680	Carbon, Total Organic (TOC)	Report	-	mg/L	Grab	Weekly	Daily Maximum
00680	Carbon, Total Organic (TOC)	Report	-	mg/L	Grab	Weekly	Monthly Average
50050	Flow	Report	-	MGD	Recorder	Continuous	Daily Maximum
50050	Flow	Report	-	MGD	Recorder	Continuous	Monthly Average
TAA3B	LC50 Static 48Hr Acute Ceriodaphnia	>=	2.8	%	Composite	1/Permit	Minimum
TAA6C	LC50 Static 48Hr Acute Pimephales promelas	>=	2.8	%	Composite	1/Permit	Minimum

Notes:

See **Part 1.2.3** for test procedures.

See **Part 3.3** for biomonitoring test and reporting requirements.

