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

May 9, 2023

Mr. Kyle Miller, Plant Manager
e-copy: kyle.miller@albemarle.com
856 Foote Lane
New Johnsonville, TN 37134

Subject: **Draft of NPDES Permit No. TN0062537**
Albemarle Corporation
New Johnsonville, Humphreys County, Tennessee

Dear Mr. Miller:

Enclosed please find a draft copy of the NPDES Permit No. TN0062537, which the Division of Water Resources proposes to issue. This draft copy is furnished to you solely for your review of its provisions. No wastewater discharges are authorized by this draft permit. The issuance of this permit is contingent upon your meeting all of the requirements of the Tennessee Water Quality Control Act and the Rules and Regulations of the Tennessee Water Quality, Oil and Gas Board.

Also enclosed is a copy of the public notice that announces our intent to issue this permit. The notice affords the public an opportunity to review the draft permit and, if necessary, request a public hearing on this issuance process. If you disagree with the provisions and requirements contained in the draft permit, you have thirty (30) days from the date of this correspondence to notify the division of your objections. If your objections cannot be resolved, you may appeal this permit upon issuance. This appeal should be filed in accordance with Section 69-3-110 of the Tennessee Code Annotated.

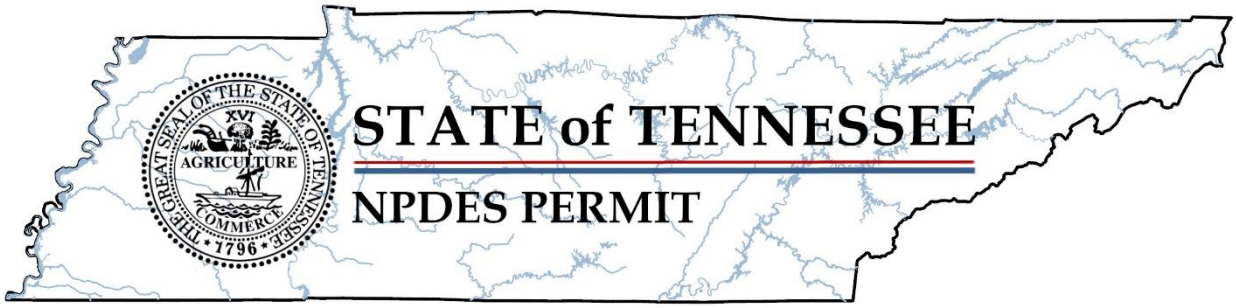
If you have questions, please contact the Nashville Environmental Field Office at 1-888-891-TDEC; or, at this office, please contact Ms. Sarah Terpstra at (615) 532-3634 or by E-mail at *Sarah.Terpstra@tn.gov*.

Sincerely,

Vojin Janjić
Manager, Water-Based Systems

Enclosure

cc: Mr. John Stewart, Lab Manager, john.stewart@albemarle.com
Permit Section File & Nashville Environmental Field Office
NPDES Permit Section, EPA Region IV, r4npdespermits@epa.gov



Authorization to Discharge Under the National Pollutant Discharge Elimination System (NPDES) Permit Number TN0062537

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.)

Permittee:	**Albemarle Corporation**
is authorized to discharge:	process wastewater, container wash water, cooling tower blowdown and storm water runoff from Outfall 001 and storm water runoff from Outfall SW2
from a facility located at:	856 Foote Lane, New Johnsonville, Humphreys County, Tennessee
to receiving waters named:	Indian Creek Embayment of the Tennessee River via a wet weather conveyance

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

This permit shall become effective on:
This permit shall expire on:
Issuance date:

DRAFT

for Jennifer Dodd
Director

Table of Contents

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PART 1

1. EFFLUENT LIMITATIONS AND MONITORING REQUIREMENTS

1.1. NUMERIC AND NARRATIVE EFFLUENT LIMITATIONS

Albemarle Corporation is authorized to discharge process wastewater, container wash water, cooling tower blowdown and stormwater runoff from Outfall 001 and stormwater runoff from Outfall SW2 to Indian Creek Embayment of the Tennessee River via a wet weather conveyance.

1.1.1. Numeric Effluent Limitations

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

Outfall 001							
Code	**Parameter**	**Qualifier**	**Value**	**Unit**	**Sample Type**	**Monitoring Frequency**	**Statistical Base**
00310	BOD, 5-day, 20 C	<=	45	mg/L	Grab	Monthly	Daily Maximum
00400	pH	>=	6.0	SU	Grab	Monthly	Daily Minimum
00400	pH	<=	9.0	SU	Grab	Monthly	Daily Maximum
00530	Total Suspended Solids (TSS)	<=	40	mg/L	Grab	Monthly	Daily Maximum
01132	Lithium, total (as Li)	Report	-	mg/L	Grab	Annual	Daily Maximum
01132	Lithium, total (as Li)	Report	-	mg/L	Grab	Annual	Monthly Average
50050	Flow	Report	-	MGD	Instantaneous	Monthly	Daily Maximum
50050	Flow	Report	-	MGD	Instantaneous	Monthly	Monthly Average

Outfall SW2							
Code	**Parameter**	**Qualifier**	**Value**	**Unit**	**Sample Type**	**Monitoring Frequency**	**Statistical Base**
00310	BOD, 5-day, 20 C *	<=	30	mg/L	Grab	Semiannual	Daily Maximum
00400	pH	Report	-	SU	Grab	Semiannual	Value
00530	Total Suspended Solids (TSS) *	<=	150	mg/L	Grab	Semiannual	Daily Maximum
00552	Oil and grease *	<=	15	mg/L	Grab	Semiannual	Daily Maximum
50050	Flow	Report	-	MGD	Estimate	Semiannual	Daily Maximum
50050	Flow	Report	-	MGD	Estimate	Semiannual	Monthly Average

* Values for these parameters are “Alert” only. Exceedances of alert values do not constitute a permit violation but indicate the permittee should evaluate the effectiveness of the SWPPP and BMPs onsite. See Part 4.1 – Definitions for more information.

1.1.2. Narrative Conditions

Additionally, 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.

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

Composite samples must be proportioned by flow at the time of sampling. Aliquots may be collected manually or automatically. The sample aliquots must

[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.

be maintained at ≤ 6°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.

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).

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

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

1.3.5. 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, or any release (whether or not caused by improper operation and maintenance), which could cause a threat to human health or the environment, the permittee shall:

i. Report the noncompliance or release to the Commissioner within 24 hours from the time the permittee becomes aware of the circumstances. Such noncompliance or release includes, but is not limited to, any unanticipated bypass exceeding any effluent limitation, any upset exceeding any effluent limitation, and violations of any maximum daily effluent limitation identified in the permit as requiring 24-hour reporting. (The EFO should be contacted for names and phone numbers of the environmental response team.)

ii. Submit a written report within five days of the time the permittee becomes aware of the noncompliance. The permittee shall provide the following information:

1. A description of and the cause of the noncompliance or release;

2. The period of noncompliance or release, including start and end dates and times i.e. duration or, if not corrected, the anticipated time the noncompliance or release is expected to continue;

3. The steps being taken to reduce, eliminate, and prevent recurrence of the noncompliance or release; and

4. For POTWs or domestic wastewater treatment plants, reporting any dry weather overflow, wet weather overflow, dry weather release, wet weather release, combined sewer overflow, or bypass, this written report must also include the following:

   I. Type of event;
   II. Type of sewer overflow, release, or bypass structure (e.g., manhole, combined sewer overflow outfall);
   III. Estimated volume (gallons);
   IV. Types of human health and environmental impacts;
   V. Location (latitude and longitude);
   VI. Estimated duration (hours);
   VII. The next downstream pump station (for overflows and releases only); and
   VIII. The name of receiving water (if applicable).

iii. Industrial dischargers that do not treat domestic waste shall comply with subpart a) ii. 4. of this subparagraph with respect to bypasses only.

iv. For overflows, releases, bypasses, upsets and washouts, the report required by a) ii. Shall be submitted electronically via MyTDEC Forms.

b) Other Noncompliance.

i. All permittees shall report each instance of noncompliance or any release (whether or not caused by improper operation and maintenance), not reported under sub-part a) at the time of submitting the next routine monitoring report, including all information required by sub-parts a) ii. 1-3.

ii. In addition to the information required by part i of this sub-part, POTWs and domestic wastewater treatment plants shall submit a written report containing the information required by sub-part a) i. 4. If these events are caused by an extreme weather event, the Commissioner may provide a written waiver of some or all of these reporting requirements.

iii. In addition to the information required by sub-part i, industrial dischargers shall submit a written report of bypasses containing the information required by sub-part a) i. 4. This part does not relieve industrial dischargers from any applicable reporting requirements of 40 C.F.R. Part 117 (2021) and 40 C.F.R. Part 302 (2021).

2.3.2. Overflows and Releases

a) For publicly owned treatment works (POTW) or domestic wastewater treatment plants, sanitary sewer overflows, including dry-weather overflows and wet weather overflows, are prohibited.

b) Releases caused by improper operation and maintenance, which is to be determined by the Commissioner based on the totality of the circumstances, are prohibited.

c) The permittee shall operate the collection, transmission, and treatment system so as to avoid sanitary sewer overflows and releases due to improper operation or maintenance. A "release" may be due to improper operation or maintenance of the collection system or may be due to other cause(s).

d) The permittee shall take all reasonable steps to minimize any adverse impact associated with overflows and releases.

e) No new or additional flows shall be added upstream of any point in the collection, transmission, or treatment system that experiences greater than 5 sanitary sewer overflows and/or releases per year[2] or would otherwise overload any portion of the system. Unless there is specific enforcement action to the contrary, the permittee is relieved of this requirement after:

1) An authorized representative of the Commissioner of the Department of Environment and Conservation has approved an engineering report and construction plans and specifications prepared in accordance with accepted engineering practices for correction of the problem;
2) The correction work is underway; and
3) The cumulative, peak-design flows potentially added from new connections and line extensions upstream of any chronic overflow or release point are less than or proportional to the amount of inflow and infiltration removal documented upstream from that point.

[2] This includes dry weather overflows, wet weather overflows, dry weather releases and wet weather releases.

The inflow and infiltration reduction must be measured by the permittee using practices that are customary in the environmental engineering field and reported in an attachment to the permittee's DMR and uploaded to NetDMR. The data measurement period shall be sufficient to account for seasonal rainfall patterns and seasonal groundwater table elevations.

f) In the event that chronic sanitary sewer overflows or releases have occurred from a single point in the collection system for reasons that may not warrant the self-imposed moratorium of the actions identified in this paragraph, the permittee may request a meeting with Division EFO staff to petition for a waiver based on mitigating evidence.

g) For industrial dischargers, the discharge of pollutants from any location other than a permitted outfall is prohibited.

2.3.3. Upset

a) An upset shall constitute an affirmative defense to an action brought for noncompliance with 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".

b) In any enforcement proceeding, the permittee seeking to establish the affirmative defense of an upset has the burden of proof.

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) Bypasses (see subpart 4.1) 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
      a. For anticipated bypass, the permittee submits prior notice, if possible at least ten days before the date of the bypass, or
      b. 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.

b) 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. The permittee must sample and report the discharge during each bypass to demonstrate that the bypass does not cause effluent limitations to be exceeded.

2.3.6. Washout

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

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

2.4. LIABILITIES

2.4.1. Civil and Criminal Liability

Except as provided in permit conditions for "*Bypass*" (**Section 2.3.5**), "*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. 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
Albemarle Corporation
(540) 230-3745
NPDES Permit No. TN0062537
TENNESSEE DIVISION OF WATER RESOURCES
1-888-891-8332 ENVIRONMENTAL FIELD OFFICE - Nashville

Industrial Stormwater Runoff:

INDUSTRIAL STORMWATER RUNOFF
Albemarle Corporation
(540) 230-3745
NPDES Permit No. TN0062537
TENNESSEE DIVISION OF WATER RESOURCES
1-888-891-8332 ENVIRONMENTAL FIELD OFFICE - Nashville

PART 4

4. DEFINITIONS AND ACRONYMS

4.1. DEFINITIONS

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

An ***Alert Value*** is a benchmark concentration that indicates presence of pollutants in concentrations that shall require a review of BMPs used in a corresponding drainage area. An alert value differs from an enforceable numerical limit in that an exceedance of the alert value is not a permit violation. However, the failure to report a sampled concentration with an alert value is a permit violation.

Bypass means the intentional diversion of waste streams from any portion of a treatment facility.

A ***calendar day*** means 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*** means a combination of not less than eight influent or effluent portions (aliquots), collected over a 24-hour period. Under certain circumstances a lesser time period may be allowed, but in no case less than eight hours. A sufficient volume of sample to perform all required analyses plus any additional amount for quality control must be obtained. For automatic samplers that use a peristaltic pump, a minimum 100 ml aliquot must be obtained.

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.

The ***daily maximum amount*** means the total amount of any pollutant in the discharge by weight during any calendar day.

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

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

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

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

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

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

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

The ***geometric mean*** of any set of values means 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 shall be considered to be one.

A ***grab sample*** means a single sample collected at a particular time.

Industrial discharger means those industries identified in the standard industrial classification manual, Bureau of the Budget, 1987, as amended and supplemented, under the category "Division D - Manufacturing" and such other classes of significant waste producers as the Board or Commissioner deems appropriate.

Industrial wastes means any liquid, solid, or gaseous substance, or combination thereof, or form of energy including heat, resulting from any process of industry, manufacture, trade, or business or from the development of any natural resource.

The ***instantaneous maximum concentration*** means the concentration, in units of mass per volume, of any pollutant parameter in a grab sample taken at any point in time.

The ***instantaneous minimum concentration*** means the minimum concentration, in units of mass per volume, of a pollutant parameter in a grab sample taken at any point in time.

Major facility means a municipal or domestic wastewater treatment plant with a design capacity of one million gallons per day or greater; or any other facility or activity classified as such by the Commissioner.

Minor facility means any facility that is not a major facility.

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

The ***monthly average concentration***, means the arithmetic mean of all samples collected in a one calendar-month period, expressed in units of mass per volume of any pollutant other than bacteria.

National Pollutant Discharge Elimination System or ***NPDES*** means the national program for issuing, modifying, revoking and reissuing, terminating, monitoring and enforcing permits, and imposing and enforcing pretreatment requirements, under sections 307, 402, 318, and 405 of the federal CWA. The term includes an "approved program."

New or increased discharge is a new discharge of pollutants to waters of the state or an increase in the authorized loading of a pollutant above either (1) numeric effluent limitations established in a National Pollutant Discharge Elimination System permit for that discharge, or (2) if no such limitations exist, the actual discharges of that pollutant.

New source means any building, structure, facility, area, or installation from which there is or may be a "discharge of pollutants," the construction of which commenced after the publication of state or federal regulations prescribing a standard of performance.

Nitrate (as N) means nitrate reported as nitrogen.

A ***one-week period*** (or ***calendar-week***) means 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.

Owner or ***operator*** means any person who owns, leases, operates, controls, or supervises a source.

Person means an individual, association, partnership, corporation, municipality, state or federal agency, or an agent or employee thereof.

Point source means any discernible, confined, and discrete conveyance, including but not limited to, any pipe, ditch, channel, tunnel, conduit, well, discrete fissure, container, rolling stock, concentrated animal feeding operation, landfill leachate collection system, vessel, or other floating craft from which pollutants are or may be discharged. This term does not include return flows from irrigated agriculture or agricultural stormwater runoff.

Pollutant means sewage, industrial wastes, or other wastes.

Pollution means such alteration of the physical, chemical, biological, bacteriological, or radiological properties of the waters of this state including, but not limited to, changes in temperature, taste, color, turbidity, or odor of the waters that will:

(a) Result or will likely result in harm, potential harm, or detriment to the public health, safety, or welfare;

(b) Result or will likely result in harm, potential harm, or detriment to the health of animals, birds, fish, or aquatic life;

(c) Render or will likely render the waters substantially less useful for domestic, municipal, industrial, agricultural, recreational, or other reasonable uses; or

(d) Leave or likely leave the waters in such condition as to violate any standards of water quality established by the Board.

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.

Quarter means 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.

Rainfall event means 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.

Rationale or ***fact sheet*** means 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.

Schedule of compliance means a schedule of remedial measures including an enforceable sequence of actions or operations leading to compliance with an effluent limitation, condition of a permit, other limitation, prohibition, standard, or regulation. This term includes, but is not limited to, schedules authorized by national effluent limitations guidelines or by Tennessee's water quality standards.

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.

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

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

Source means any activity, operation, construction, building, structure, facility, or installation from which there is or may be the discharge of pollutants.

Standard of performance means a standard for the control of the discharge of pollutants that reflects the greatest degree of effluent reduction that the Commissioner determines to be achievable through application of the best available demonstrated control technology, processes, operating methods, or other alternatives, including, where practicable, a standard permitting no discharge of pollutants.

Stream means a surface water that is not a wet weather conveyance.

Subecoregion is a smaller, more homogenous area that has been delineated within an ecoregion.

Total dissolved solids or ***TDS*** means nonfilterable residue.

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.

Watercourse means a man-made or natural hydrologic feature with a defined linear channel that discretely conveys flowing water, as opposed to sheet-flow.

Weekly average amount means the arithmetic mean of all the measured daily discharges by weight during the calendar week when the measurements were made.

Weekly average concentration means the arithmetic mean of all the concentrations expressed in units of mass per volume of any pollutant measured in a calendar week.

Wet weather conveyance means, notwithstanding any other law or rule to the contrary, man-made or natural watercourses, including natural watercourses that have been modified by channelization:

(a) That flow only in direct response to precipitation runoff in their immediate locality;

(b) Whose channels are at all times above the groundwater table;

(c) That are not suitable for drinking water supplies; and

(d) In which hydrological and biological analyses indicate that, under normal weather conditions, due to naturally occurring ephemeral or low flow there is not sufficient water to support fish, or multiple populations of obligate lotic aquatic organisms whose life cycle includes an aquatic phase of at least two months.

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
E. coli – *Escherichia coli*
EPA – Environmental Protection Agency
EFO – environmental field office
GPM – gallons per minute
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/Title40/40chaptI.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

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

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

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

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

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)

The discharger will develop, document, and maintain a stormwater pollution prevention plan (SWPPP) pursuant to the requirements as set forth in the Tennessee Multi-Sector General Permit for Industrial Activities, Sector C, "Stormwater Discharges Associated With Industrial Activity From Chemical and Allied Products Manufacturing Facilities", Part 3, "Storm Water Pollution Prevention Plan Requirements". The plan shall be signed by either a principal executive officer of a corporation, the owner or proprietor of a sole proprietorship, or a partner or general partner of a partnership. The SWPPP developed and implemented shall contain, in addition to the requirements listed in the Tennessee Multi-Sector SWPPP guidelines for Chemical and Allied Products Manufacturing Facilities, the following items:

5.1. PLAN IMPLEMENTATION

The plan should be developed and available for review within 30 days after permit coverage. Facilities should implement the management practices as soon as possible, but not later than one year after permit coverage. Where new construction is necessary to implement the management plan, a construction schedule should be included. Construction should be completed as soon as possible.

5.2. PLAN AVAILABILITY

The plan will be maintained by the discharger on the site or at a nearby office. Copies of the plan will be submitted to the Division within ten business days of any request.

5.3. PLAN MODIFICATION

The plan will be modified as required by the Division Director.

5.4. MONITORING PLAN

The stormwater discharges will be monitored as required in **Part 1.1.** of the permit, as applicable to stormwater outfalls. For each outfall monitored, the surface area and type of cover (*e.g.* roof, pavement, grassy areas, gravel) will be identified.

Sector C - SWPPP Requirements

3. Stormwater Pollution Prevention Plan Requirements

3.1 Deadlines for Plan Preparation and Compliance. There are no additional deadlines for plan preparation and compliance, other than those stated in subpart 4.1.

3.2 Contents of Plan. The plan shall include, at a minimum, the following items:

3.2.1 Pollution Prevention Team. Each plan shall identify a specific individual or individuals within the facility organization as members of a stormwater Pollution Prevention Team that are responsible for developing the stormwater pollution prevention plan and assisting the facility or plant manager in its implementation, maintenance, and revision. The plan shall clearly identify the responsibilities of each team member. The activities and responsibilities of the team shall address all aspects of the facility's stormwater pollution prevention plan.

3.2.2 Description of Potential Pollutant Sources. Each plan shall provide a description of potential sources that may reasonably be expected to add significant amounts of pollutants to stormwater discharges or that may result in the discharge of pollutants during dry weather from separate storm sewers draining the facility. Each plan shall identify all activities and significant materials that may potentially be significant pollutant sources. Each plan shall include, at a minimum:

3.2.2.1 Drainage. A site map indicating an outline of the portions of the drainage area of each stormwater outfall that are within the facility boundaries, each existing structural control measure to reduce pollutants in stormwater runoff, surface water bodies, locations where significant materials are exposed to precipitation, locations where major spills or leaks identified under 3.2.2.3 (spills and leaks) of this permit have occurred, and the locations of the following activities where such activities are exposed to precipitation: fueling stations, vehicle and equipment maintenance and/or cleaning areas, loading/unloading areas, locations used for the treatment, storage or disposal of wastes, liquid storage tanks, processing areas and storage areas including areas where raw materials, finished products and drums are stored. The map must indicate the outfall locations and the types of discharges contained in the drainage areas of the outfalls.

For each area of the facility that generates stormwater discharges associated with industrial activity with a reasonable potential for containing significant amounts of pollutants, the plan should include a prediction of the direction of flow, and an identification of the types of pollutants that are likely to be present in stormwater discharges associated with industrial

activity. Factors to consider include the toxicity of a chemical; quantity of chemicals used, produced or discharged; the likelihood of contact with stormwater; and history of significant leaks or spills of toxic or hazardous pollutants. Flows with a significant potential for causing erosion shall be identified.

3.2.2.2 Inventory of Exposed Materials - An inventory of the types of materials handled at the site that potentially may be exposed to precipitation. Such inventory shall include a narrative description of significant materials that have been handled, treated, stored or disposed in a manner to allow exposure to stormwater between the time of 3 years prior to the date of the submission of an NOI to be covered under this permit and the present; method and location of onsite storage or disposal; materials management practices employed to minimize contact of materials with stormwater runoff between the time of 3 years prior to the date of the submission of an NOI to be covered under this permit and the present; the location and a description of existing structural and nonstructural control measures to reduce pollutants in stormwater runoff; and a description of any treatment the stormwater receives.

3.2.2.3 Spills and Leaks - A list of significant spills and significant leaks of toxic or hazardous pollutants that occurred at areas that are exposed to precipitation or that otherwise drain to a stormwater conveyance at the facility after the date of 3 years prior to the date of the submission of an NOI to be covered under this permit. Such list shall be updated as appropriate during the term of the permit.

3.2.2.4 Sampling Data - A summary of existing discharge sampling data describing pollutants in stormwater discharges from the facility, including a summary of sampling data collected during the term of this permit.

3.2.2.5 Risk Identification and Summary of Potential Pollutant Sources - A narrative description of the potential pollutant sources from the following activities: loading and unloading operations; outdoor storage activities; outdoor manufacturing or processing activities; significant dust or particulate generating processes; and onsite waste disposal practices. The description shall specifically list any significant potential source of pollutants at the site and for each potential source, any pollutant or pollutant parameter (e.g., biochemical oxygen demand, etc.) of concern shall be identified.

3.2.3 Measures and Controls. Each facility covered by this permit shall develop a description of stormwater management controls appropriate for the facility, and implement such controls. The appropriateness and priorities of controls in a plan shall reflect identified potential sources of pollutants at the facility. The description of stormwater management controls shall address the following minimum components, including a schedule for implementing such controls:

3.2.3.1 Good Housekeeping - Good housekeeping requires the maintenance of areas that may contribute pollutants to stormwater discharges in a clean, orderly manner. Particular attention should be paid to areas where raw materials are stockpiled, material handling areas, storage areas, liquid storage tanks, material handling areas, and loading/unloading areas. The areas surrounding storm drain inlets and outfall points should also be free of material that could discharge off-site and contribute to pollutants in stormwater.

3.2.3.2 Preventive Maintenance - A preventive maintenance program shall involve timely inspection and maintenance of stormwater management devices (e.g., cleaning oil/water separators, catch basins) as well as inspecting and testing facility equipment and systems to uncover conditions that could cause breakdowns or failures resulting in discharges of pollutants to surface waters, and ensuring appropriate maintenance of such equipment and systems.

3.2.3.3 Spill Prevention and Response Procedures - Areas where potential spills that can contribute pollutants to stormwater discharges can occur, and their accompanying drainage points shall be identified clearly in the stormwater pollution prevention plan. Where appropriate, specifying material handling procedures, storage requirements, and use of equipment such as diversion valves in the plan should be considered. Procedures for cleaning up spills shall be identified in the plan and made available to the appropriate personnel. The necessary equipment to implement a clean-up should be available to personnel.

3.2.3.4 Inspections - In addition to or as part of the comprehensive site evaluation required under this section, qualified facility personnel shall be identified to inspect designated equipment and areas of the facility at appropriate intervals specified in the SWPPP. Material storage and handling areas, liquid storage tanks, hoppers or silos, vehicle and equipment maintenance, cleaning, and fueling areas, material handling vehicles, equipment and processing areas shall be inspected at least once per month as part of the maintenance program. A set of tracking or follow-up procedures shall be used to ensure that appropriate actions are taken in response to the inspections. Records of inspections shall be maintained as part of the SWPPP. The use of a checklist developed by the facility is encouraged.

Note that additional Stormwater Pollution Prevention Plan (SWPPP) requirements for discharges into waters with unavailable parameters or Exceptional Tennessee waters, as described in the subpart 4.6 of this permit may be applicable to your facility.

3.2.3.5 Employee Training - Employee training programs shall inform personnel responsible for implementing activities identified in the stormwater pollution prevention plan or otherwise responsible for stormwater management at all levels of responsibility of the components and goals of the stormwater pollution prevention plan. Training should address topics such as spill response, good housekeeping and material management practices. The pollution prevention plan shall identify periodic dates for such training.

3.2.3.6 Recordkeeping and Internal Reporting Procedures - A description of incidents (such as spills, or other discharges), along with other information describing the quality and quantity of stormwater discharges shall be included in the plan required under this part. Inspections and maintenance activities shall be documented and records of such activities shall be incorporated into the plan.

3.2.3.7 Non-stormwater Discharges

3.2.3.7.1 The plan shall include a certification that the discharge has been tested or evaluated for the presence of non-stormwater discharges. The certification shall include the identification of potential significant sources of non-stormwater at the site, a description of the results of any test and/or evaluation for the presence of non-stormwater discharges, the evaluation criteria or testing method used, the date of any testing and/or evaluation, and the onsite drainage points

that were directly observed during the test. Certifications shall be signed in accordance with subpart 7.7 of this permit. Such certification may not be feasible if the facility operating the stormwater discharge associated with industrial activity does not have access to an outfall, manhole, or other point of access to the ultimate conduit that receives the discharge. In such cases, the source identification section of the stormwater pollution prevention plan shall indicate why the certification required by this part was not feasible, along with the identification of potential significant sources of non-stormwater at the site. A discharger that is unable to provide the certification required by this paragraph must notify the Division of Water Resources in accordance with paragraph 3.2.3.7.3 "Failure to Certify" (below).

3.2.3.7.2 Sources of non-stormwater that are combined with stormwater discharges associated with industrial activity must be identified in the plan. The plan shall identify and ensure the implementation of appropriate pollution prevention measures for the non-stormwater component(s) of the discharge. Any non-stormwater discharges that are not authorized under this permit or another NPDES permit should be brought to the attention of the division's local Environmental Field Office (see list of EFOs on page 14).

3.2.3.7.3 Failure to Certify - Any facility that is unable to provide the certification required (testing for non-stormwater discharges), must notify the Division of Water Resources not later than 180 days after submitting an NOI to be covered by this permit. If the failure to certify is caused by the inability to perform adequate tests or evaluations, such notification shall describe: the procedure of any test conducted for the presence of non-stormwater discharges; the results of such test or other relevant observations; potential sources of non-stormwater discharges to the storm sewer; and why adequate tests for such storm sewers were not feasible. Non-stormwater discharges to waters of the state that are not authorized by an NPDES permit are unlawful, and must be terminated.

3.2.3.8 Sediment and Erosion Control - The plan shall identify areas that, due to topography, activities, or other factors, have a high potential for significant soil erosion, and identify structural, vegetative, and/or stabilization measures to be used to limit erosion.

3.2.3.9 Management of Runoff - The plan shall contain a narrative consideration of the appropriateness of traditional stormwater management practices (practices other than those that control the generation or source(s) of pollutants) used to divert, infiltrate, reuse, or otherwise manage stormwater runoff in a manner that reduces pollutants in stormwater discharges from the site. The plan shall provide that measures that the permittee determines to be reasonable and appropriate shall be implemented and maintained. The potential of various sources at the facility to contribute pollutants to stormwater discharges associated with industrial activity [see paragraph 3.2.2 of this section (Description of Potential Pollutant Sources)] shall be considered when determining reasonable and appropriate measures. Appropriate measures may include: vegetated swales, reuse of collected stormwater (such as for a process or as an irrigation source), inlet controls (such as oil/water separators), infiltration devices, and detention/retention basins or other equivalent measures.

3.2.4 Comprehensive Site Compliance Evaluation. Qualified personnel shall conduct site compliance evaluations at appropriate intervals specified in the SWPPP, but in no case less than once a year. Evaluations shall be conducted at least once at portable plant locations that are not in operation for a complete year. Such evaluations shall provide:

3.2.4.1 Areas contributing to a stormwater discharge associated with industrial activity including; material storage and handling areas, liquid storage tanks, hoppers or silos, vehicle and equipment maintenance, cleaning, and fueling areas, material handling vehicles, equipment and processing areas, and areas where aggregate is stockpiled outdoors shall be visually inspected for evidence of, or the potential for, pollutants entering the drainage system (and potentially waters of the state). Measures to reduce pollutant loadings shall be evaluated to determine whether they are adequate and properly implemented in accordance with the terms of the permit or whether additional control measures are needed. Structural stormwater management measures, (e.g., oil/water separators, detention ponds, sedimentation basins or equivalent measures) sediment and erosion control measures, and other structural pollution prevention measures identified in the plan shall be observed to ensure that they are operating correctly. A visual inspection of equipment needed to implement the plan, such as dust collection equipment and spill response equipment, shall be made.

3.2.4.2 Based on the results of the evaluation, the description of potential pollutant sources identified in the plan in accordance with 3.2.2 of this section (description of potential pollutant sources) and pollution prevention measures and controls identified in the plan in accordance with section 3.2.3 of this sector (measures and controls) shall be revised as appropriate within 2 weeks of such evaluation and shall provide for implementation of any changes to the plan in a timely manner, but in no case later than 12 weeks after the evaluation.

3.2.4.3 A report summarizing the scope of the evaluation, personnel making the evaluation, the date(s) of the evaluation, major observations relating to the implementation of the stormwater pollution prevention plan, and actions taken in accordance with paragraph (4)(b) (above) of the permit shall be made and retained as part of the stormwater pollution prevention plan for at least 3 years after the date of the evaluation. The report shall identify any incidents of noncompliance. Where a report does not identify any incidents of noncompliance, the report shall contain a certification that the facility is in compliance with the stormwater pollution prevention plan and this permit. The report shall be signed in accordance with subpart 7.7 (Signatory Requirements) of this permit.

3.2.4.4 Where compliance evaluation schedules overlap with inspections, the compliance evaluation may be conducted in place of one such inspection.

RATIONALE

Albemarle Corporation
NPDES Permit No. TN0062537
Permit Writer: Sarah Terpstra

1. PERMIT STATUS & PUBLIC PARTICIPATION

Permit Type:	Industrial
Previous Issuance Date:	June 1, 2018
Previous Expiration Date:	May 31, 2023
Previous Effective Date:	June 1, 2018

As provided under Rule 0400-40-05-.06, this permit allows 30 days for public comment on the proposed permit. The 30-day public comment period begins the date this permit is placed on public notice. The public notice document for this permit can be found at the Division's Water Notices and Hearings website under "Permit Public Notices".

Public Notice Date:	May 9, 2023
Comment Period Ends:	June 8, 2023

Those wishing to make a formal comment on the proposed permit may submit comments electronically to Water.Permits@tn.gov, or by mail to:

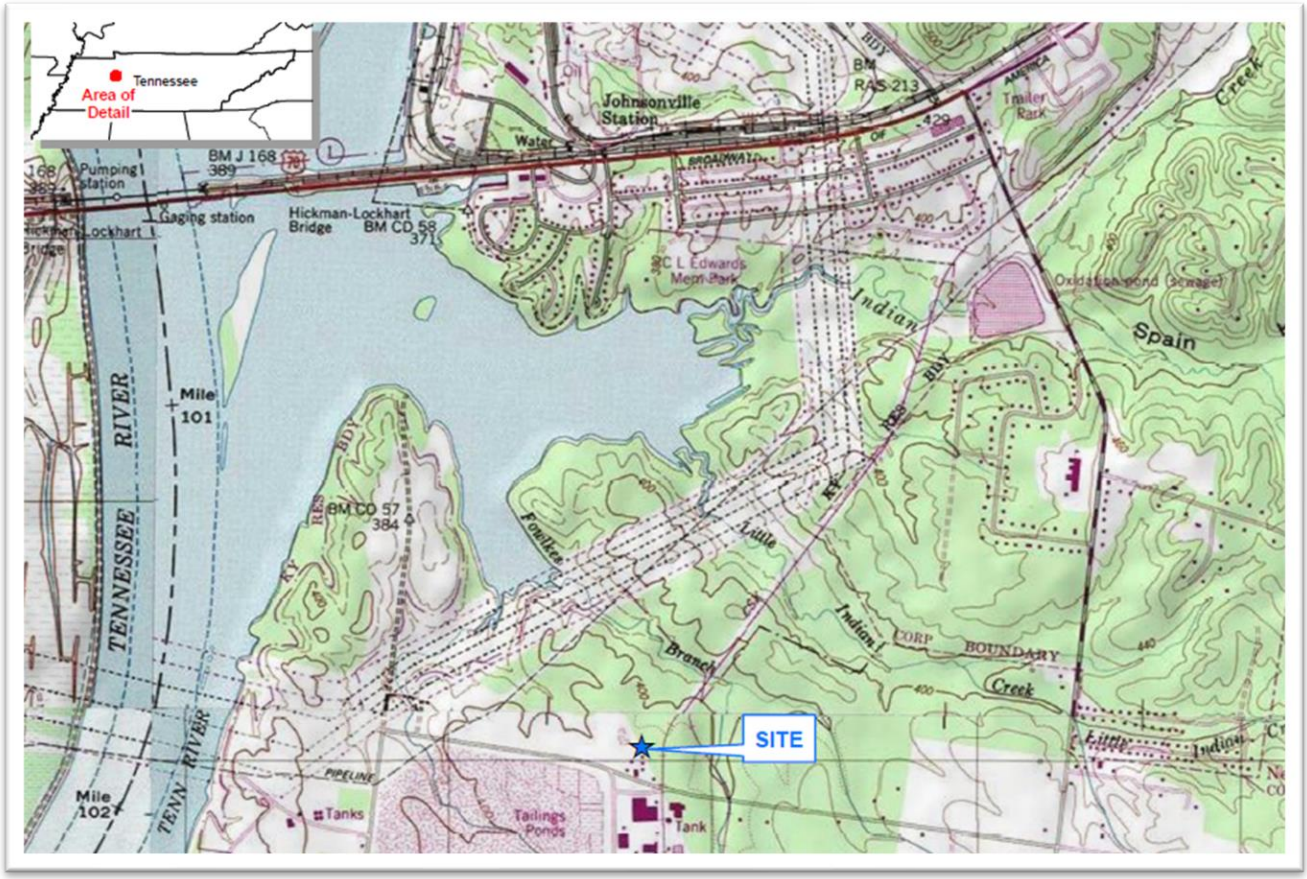
Division of Water Resources - Water Based Systems Unit
William R. Snodgrass Tennessee Tower
312 Rosa L. Parks Avenue, 11th Floor
Nashville, TN 37243-1102

The public may also request a public hearing on a proposed permit by submitting such a request in writing during the public comment period specified above. The request should indicate the interest of the party filing it and the reasons why a hearing is warranted. A request for public hearing should be submitted as soon as practicable to the addresses provided above. Questions regarding the draft permit may be directed to 1-888-891-TDEC.

2. FACILITY INFORMATION

Permittee Name:	**Albemarle Corporation**
Location:	856 Foote Lane, New Johnsonville, Humphreys County, TN
Contact:	Mr. Kyle Miller - Plant Manager (540) 230-3745 kyle.miller@albemarle.com
Design Flow Rate:	0.035 MGD
Nature of Business:	Manufacture of organometallic compounds, primarily lithium alkyl production
SIC Code(s):	2869
Industrial Classification:	Primary Facility *
Discharger Rating:	Minor

* 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])



3. FACILITY DISCHARGES AND RECEIVING STREAM INFORMATION

Receiving Waterbody:	**Indian Creek Embayment of the Tennessee River via a wet weather conveyance**
Watershed Group:	Tennessee Western Valley (Kentucky Lake)
Hydrocode:	06040005
Primary Outfall Latitude:	35.997222
Primary Outfall Longitude:	-87.98166
Low Flow:	1Q10 = 3232 MGD (5000 CFS)
Low Flow Reference:	George S. Law, USGS

Stream Designated Uses:

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

Albemarle Corporation discharges process wastewater, container wash water, cooling tower blowdown and stormwater runoff from Outfall 001 and stormwater runoff from Outfall SW2 to Indian Creek Embayment of the Tennessee River via a wet weather conveyance.

The 1Q10 (3232 MGD) and 30Q5 (9695 MGD) low flows for this regulated stream were calculated by USGS in 2008 using gage station data and dam operations on the Tennessee River. As a regulated stream, conditions are not likely to have changed substantially; therefore previously calculated flows are retained in this permit. Appendix 4 summarizes facility discharges and the receiving stream information for the relevant outfall(s). Additional correspondence with USGS regarding low flow calculations is maintained in the permit record.

4. APPLICABLE EFFLUENT LIMITATIONS GUIDELINES

The Standard Industrial Classification (SIC) code for Albemarle Corporation is 2869 (Industrial Organic Chemicals, Not Elsewhere Classified). Process wastewater discharged through Outfall 001 is regulated by 40 CFR § 414 – Organic Chemicals, Plastics, and Synthetic Fibers (OCPSF), Subpart H: Specialty Organic Chemicals. Considering the facility's annual production is less than five million pounds of OCPSF products per year, 40 CFR Parts § 414.91 and § 414.101 are not applicable.

There are currently no effluent limitations guidelines for the discharge of uncontaminated cooling water and storm water runoff from the facility. Standards

of performance are therefore established in accordance with existing state regulations using available treatability information.

5. PREVIOUS PERMIT TERM REVIEW

A review of the permittee's Discharge Monitoring Reports (DMRs) from June 2018 to March 2023 revealed that the permittee was in compliance with the permit conditions and reported no violations of permit limits. 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 Virginia Lawrence on January 24, 2019, and the permittee was found to be in compliance.

6. 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.

6.1. 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.

6.2. METALS AND TOXICS

Effluent permit limits for metals and toxics were calculated as shown in Appendix 3.

6.2.1. Lithium

Lithium compounds are the primary manufacturing product, and some amounts of lithium hydroxide are contained in the effluent. The pH of the receiving stream may be affected by the hydroxide ion therefore a pH limitation is required for Outfall 001. Tennessee does not have numeric water quality standards for lithium. Lithium carbonate can be slightly toxic to freshwater fish and aquatic invertebrates. Daphnia magna: 48 hour EC50 = 33.2 mg/L [FMC I96-2085] Rainbow trout: 96 hour LC50 = 30.0 mg/L [FMC I96-2086]. Monitoring for lithium will continue to be performed at Outfall 001. The sample type will be grab and the monitoring frequency will be once per year (Annual).

Over the previous permit term, the permittee reported an average monthly average total lithium concentration of 36.1 mg/L and a maximum concentration of 73 mg/L. This means the facility is reporting lower effluent concentrations and average discharge flow rates than in 2013 and 2018.

2013 permit cycle: 289 mg/L average; 732 mg/L maximum; 0.06 MGD average flow. (Appendix 4 of 2013 permit)
2018 permit cycle: 44.8 mg/L average; 109.5 mg/L maximum; 0.04 MGD average flow. (Appendix 4 of 2018 permit)

Considering the relatively small discharge flow by the permittee (0.11 MGD maximum flow, 0.03 MGD average flow) and the large flow of the receiving stream (3232 MGD), the reported concentration of lithium does not pose a toxicity threat to fish and aquatic life when fully mixed in the receiving stream.

6.3. BIOCHEMICAL OXYGEN DEMAND (BOD_5)

BOD_5 (Biochemical Oxygen Demand, 5-day) is a test which measures the reduction of dissolved oxygen during the biodegradation of organic matter in a specific volume of water. The State of Tennessee's general water quality criteria does not list a maximum amount for BOD 5. In 40 CFR 414.83 Subpart H - Specialty Organic Chemicals, it lists a monthly average effluent limitation of 45 mg/L and a daily maximum limitation of 120 mg/L. This permit, however, will retain the previously established daily maximum limitation of 45 mg/L due to anti-backsliding. Due to state document purging requirements, documentation of the initial calculation of this limit is not available. The monthly average limitation has been removed from

the permit since the sampling frequency is monthly. Considering the nature of wastewater collection and discharge system, the sample type will be grab.

6.4. TOTAL SUSPENDED SOLIDS (TSS)

Total Suspended Solids is a general indicator of the quality of a wastewater and will be limited in this permit. The permit writer believes the previously established limit of 40 mg/L daily maximum concentration will provide protection of water quality in the receiving stream. Considering the nature of wastewater collection and discharge system, the sample type will be grab.

Subpart H of 40 CFR § 414.81 (BPT) provides a daily maximum limitation for TSS of 183 mg/L and a monthly average limitation of 57 mg/L. This permit, however, will retain the previously established daily maximum limit of 40 mg/L due to anti-backsliding. Due to state document purging requirements, documentation of the initial calculation of this limit is not available. The monthly average limitation has been removed from the permit since the sampling frequency is monthly.

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

6.5. 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.

6.6. TOLUENE

The previous permit included toluene as report only on a monthly basis. This was added to the permit because the facility added a new operation to clean, deactivate, and refurbish steel storage tanks that had previously held methylaluminoxane (MAO) in a toluene solvent. During the previous permit cycle, the majority of reported samples were below concentration. Of those with measurable values, the permittee reported an average toluene concentration of

0.04 mg/L and a maximum toluene concentration of 0.506 mg/L. This is significantly below state water quality criteria, which can be seen in Appendix 3.

Based on this information, this permit removes monitoring requirements for toluene.

6.7. OUTFALLS 001 & SW2

This facility is one which has stormwater runoff associated with industrial activity as defined in 40 CFR 122.26 (b)(14). Process wastewater and stormwater runoff discharged through facility Outfall 001 cannot be effectively segregated. In order to adequately characterize dry weather and wet weather discharges, two sets of effluent limitations will be established in the new permit. Effluent limitations for outfalls designated as SW2 will represent wet weather discharges from the facility. It should be noted that Outfalls 001 and SW1 represent the same physical location. The definition of wet weather flow can be found in Part 4 of this permit.

Stormwater runoff parameters to be monitored and reported were determined by comparing effluent limitations and monitoring requirements from the previous permit, the requirements from the Tennessee Storm Water Multi-Sector General Permit for Industrial Activities (TMSP), the data submitted on Discharge Monitoring Report (DMR) forms, and the data contained in the application 2F submitted by the permittee.

There are no effluent guidelines for stormwater discharges from the permittee's facility. The previous permit did not have effluent limitations for the facility's stormwater runoff. All parameters were monitored on a "Report" only basis. Similarly, the new permit will not establish effluent limitations but will require reporting of effluent characteristics at Outfall SW2. Nevertheless, a certain "cut-off concentrations" will be established for each of the monitored parameters.

The Division is not assigning limits for these parameters at this time since it is the intent of the Division that the permittee institutes a Storm Water Pollution Prevention Plan (SWPPP) in order to minimize the discharge of these pollutants from stormwater outfalls. It is the opinion of the Division that the best method for dealing with potential pollution associated with storm water discharges from the permittee's facility is through implementation of an aggressive SWPPP, coupled with discharge monitoring to verify SWPPP effectiveness. Monitoring of stormwater runoff from Outfall SW2 will be required for Flow, Biochemical Oxygen Demand (BOD-5 day), Total Suspended Solids (TSS), Oil & Grease, and pH on a semi-annual basis.

In order to assist the permittee in the evaluation of the effectiveness of the SWPPP, benchmark values developed for the Tennessee Storm Water Multi-Sector General Permit for Industrial Activities are provided herein for comparison. These benchmark values (cut-off concentrations) were developed by the EPA and the State of Tennessee and are based on data submitted by similar industries for the development of the multi-sector general stormwater permit. The cut-off concentrations are target values and should not be construed to represent permit limits.

Over the previous permit cycle, the permittee was below the cut off concentrations for all parameters at SW2 except for TSS, for which it reported a maximum TSS concentration of 646 mg/L and an average concentration of 272 mg/L. The new permit will include the cut off concentrations as "alert" values (see Part 4 for definitions), which are not enforceable limits but rather will serve as triggers for the permittee to evaluate the effectiveness of the SWPPP and BMPs on the site.

Parameters of Concern	Cut-off concentration (mg/L)
BOD (5-day)	30
Total Suspended Solids (TSS)	150
Oil & Grease	15
pH (range)	5.0 - 9.0

Note: Cut-off concentrations are from the Tennessee Stormwater Multi-Sector General Permit for Industrial Activities (TMSP)

According to the U.S. EPA *NPDES Permit Writer's Manual* (Office of Water, EPA-883-B-96-003, December 1996, Page 123), "grab" samples should be used when the quality and flow of the waste stream being sampled is not likely to change over time. Generally, for stormwater runoff samples, a grab sample is considered adequate for effluents from holding ponds or other impoundments with a retention period of greater than 24-hours (Instructions - EPA Form 3510-2F: Application for Permit to Discharge Storm Water Associated with Industrial Activity, General Instructions, p. 6 – 8).

Nevertheless, the Division recognizes that a "first flush" sample would be the most accurate representation of the maximum daily value for various pollutants in the stormwater runoff. Furthermore, stormwater sampling requirements included in the TMSP require analysis of grab samples collected within the first 30 minutes (or as soon thereafter as practical, but not to exceed one hour) of when the runoff or snowmelt begins discharging. Therefore, the sample type for all stormwater runoff parameters in the new permit will be changed from "composite" to "grab."

Every effort should be made to collect a "first flush" sample representative of the daily maximum values for sampled parameters.

The new permit will contain a Storm Water Pollution Prevention Plan (SWPPP) developed to regulate stormwater runoff. This SWPPP is meant to ensure that runoff from the facility site is not a significant source of pollution to the receiving stream. The discharger will develop, document and maintain the SWPPP pursuant to the requirements as set forth in the Tennessee's Storm Water Multi-Sector General Permit for Industrial Activities, Sector C, "*Storm Water Discharges Associated with Industrial Activity from Chemical and Allied Products Manufacturing Facilities*", Part 3, "Storm Water Pollution Prevention Plan Requirements". The effectiveness of this SWPPP will be investigated after the results of the stormwater runoff monitoring have been submitted. At that time, should the results so dictate, the Division maintains the authority to institute specific numeric limitations for the monitored parameters.

7. OTHER PERMIT REQUIREMENTS AND CONDITIONS

7.1. PERMIT TERM

In order to meet the target reissuance date for the Tennessee Western Valley (Kentucky Lake) watershed and following the directives for the Watershed Management Program initiated in January 1996, the permit will be issued to expire in 2028.

7.2. 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 June 3, 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.

7.3. 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# TN06040005020_1000.

The Division has made a determination of the receiving waters associated with the subject discharge(s) and has found the river to be an exceptional Tennessee water. The Tennessee River (Kentucky Reservoir) is designated as an Exceptional Tennessee Water from Pickwick Dam in Harden County to Bass Bay in Benton County. The basis for the designation is the observation of both federally endangered species (White Wartyback, Rough Pigtoe, Cracking Pearlymussel, Clubshell, Orange-foot Pimpleback, Ring Pink and Pink Mucket) and state endangered species (Sweetscent Ladies'-Tresses, state threatened Blue Sucker and Short-Beaked Arrowhead). The receiving stream is considered fully supporting of all designated uses.

No permanent degradation of water quality above the level of *de minimis* will be allowed unless the applicant demonstrates to the Division that the degradation is

for necessary economic or social development and will not interfere with or become injurious to any existing uses. The specific requirements for this demonstration are described in the Rules of the Tennessee Department of Environment and Conservation, Chapter 0400-40-03-.06(4).

With its application, the permittee submitted an analysis of reasonable alternatives to the continued treated wastewater discharge into the Indian Creek Embayment of the Tennessee River via a wet weather conveyance, as required for Exceptional Tennessee Waters by Rule 0400-40-03-.06(c).

Alternative 1: Connect to a Publicly Owned Treatment Works (POTW)

Determined infeasible because the discharge contains stormwater, which is not permitted in a sanitary sewer system.

Alternative 2: Onsite Land Application

Determined infeasible because the permittee does not own sufficient undeveloped land for effluent land application.

Alternative 3: Water re-use/recycling

Determined infeasible because reuse of the process wastewater would require extensive, costly treatment and there is no possibility of onsite reuse of stormwater in the pond.

The permittee determined that the three alternatives outlined above are infeasible and continued direct discharge as allowed under this permit remains necessary. The Division agrees with the permittee's alternatives analysis.

APPENDIX 1 – PREVIOUS PERMIT LIMITS

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

Parameter	Qualifier	Value	Unit	Sample Type	Frequency	StatisticalBase
BOD, 5-day, 20 C	<=	45.0	mg/L	Grab	Monthly	Daily Maximum
BOD, 5-day, 20 C	<=	45.0	mg/L	Grab	Monthly	Monthly Average
Flow[1]	Report	-	Mgal/d	Instantaneous	Monthly	Monthly Average
Flow	Report	-	Mgal/d	Instantaneous	Monthly	Daily Maximum
Total Suspended Solids (TSS)	<=	40.0	mg/L	Grab	Monthly	Daily Maximum
Total Suspended Solids (TSS)	<=	40.0	mg/L	Grab	Monthly	Monthly Average
pH[4]	>=	6.0	SU	Grab	Monthly	Daily Maximum
pH	<=	9.0	SU	Grab	Monthly	Daily Maximum
Lithium, total (as Li)	Report	-	mg/L	Grab	Annual	Monthly Average
Lithium, total (as Li)	Report	-	mg/L	Grab	Annual	Daily Maximum
Toluene	Report	-	mg/L	Grab	Monthly	Monthly Average
Toluene	Report	-	mg/L	Grab	Monthly	Daily Maximum

Description : External Outfall, Number : SW2, Monitoring : Effluent Gross, Season : All Year

Parameter	Qualifier	Value	Unit	Sample Type	Frequency	Statistical Base
BOD, 5-day, 20 C	Report	-	mg/L	Grab	Semiannual	Daily Maximum
Flow	Report	-	Mgal/d	Estimate	Semiannual	Daily Maximum
Flow	Report	-	Mgal/d	Estimate	Semiannual	Monthly Average
Oil and grease	Report	-	mg/L	Grab	Semiannual	Daily Maximum
Total Suspended Solids (TSS)	Report	-	mg/L	Grab	Semiannual	Daily Maximum
pH	Report	-	SU	Grab	Semiannual	Value

[1] Flow should be reported in Million Gallons per Day (MGD). The permittee shall record the date and duration (in hours) of the storm event(s) sampled; rainfall measurements or estimates (in inches) of the storm event that generated the sampled runoff; the duration between the storm event sampled and the end of the previous measurable (greater than 0.1 inch rainfall) storm event. Based on these data, the permittee shall provide an estimate of the total volume (flow) of the discharge sampled. Flow shall be reported in Million Gallons per Day (MGD).

APPENDIX 2 – DMR SUMMARY

Outfall 001	BOD_5		Flow		Total Lithium		pH		TSS		Toluene	
	Monthly avg. (mg/L)	Daily max. (mg/L)	Monthly avg. (MGD)	Daily max. (MGD)	Monthly avg. (mg/L)	Daily max. (mg/L)	Minimum (SU)	Maximum (SU)	Monthly avg. (mg/L)	Daily max. (mg/L)	Monthly avg. (mg/L)	Daily max. (mg/L)
03/31/2023	8.72	8.72	0.036	0.036			7	7	15.4	15.4	0.001	0.001
02/28/2023			0.039	0.039			7.6	7.6	13.4	13.4		
01/31/2023	6.21	6.21	0.039	0.039			6.3	6.3	25.6	25.6	0.00165	0.00165
12/31/2022			0.029	0.029	34.5	71.2	7.1	7.1	7.7	7.7		
11/30/2022	9.13	9.13	0.036	0.036			7.3	7.3	25	25		
10/31/2022												
09/30/2022	22.3	22.3	0.039	0.039			7.8	7.8	8.41	8.41	0.00749	0.00749
08/31/2022	9.78	9.78	0.018	0.018			6.9	6.9	11.2	11.2		
07/31/2022	7.47	7.47	0.011	0.011			6.3	6.3	13.2	13.2	0.00154	0.00154
06/30/2022			0.015	0.015			6.9	6.9	12.8	12.8		
05/31/2022	8.03	8.03	0.015	0.015			7.6	7.6	12.7	12.7		
04/30/2022	9.26	9.26	0.019	0.019			7.3	7.3	9.4	9.4		
03/31/2022	18.5	18.5	0.019	0.019			7.2	7.2	18.8	18.8	0.00396	0.00396
02/28/2022			0.02	0.02			7.4	7.4	14.8	14.8		
01/31/2022	6.3	6.3	0.023	0.023			7.2	7.2	14.4	14.4		
12/31/2021	12.3	12.3	0.025	0.025	37.6	37.6	7.3	7.3	14.4	14.4	0.00473	0.00473
11/30/2021	12.1	12.1	0.11	0.11			6.8	6.8	23	23		
10/31/2021	8.65	8.65	0.015	0.015			7.3	7.3				
09/30/2021	10.3	10.3	0.014	0.014			7.8	7.8				
08/31/2021	6.8	6.8	0.014	0.014			6.8	6.8	13.2	13.2		
07/31/2021												
06/30/2021	6.5	6.5	0.025	0.025			6.8	6.8	5.6	5.6	0.00307	0.00307
05/31/2021	8.2	8.2	0.027	0.027			6.8	6.8	8.4	8.4		
04/30/2021	8.3	8.3	0.029	0.029			6.8	6.8	5.05	5.05		
03/31/2021	11.1	11.1	0.033	0.033			6.9	6.9	17.3	17.3		
02/28/2021	8.1	8.1	0.027	0.027			7	7	6.21	6.21		
01/31/2021	7.46	7.46	0.033	0.033			6.8	6.8	10.4	10.4	0.00245	0.00245
12/31/2020	3.9	3.9	0.039	0.039	33.9	55.8	6.9	6.9	9.4	9.4		
11/30/2020	11.7	11.7	0.014	0.014			6.9	6.9				
10/31/2020												
09/30/2020	9.5	9.5	0.023	0.023			6.9	6.9	26	26	0.00255	0.00255
08/31/2020	7.9	7.9	0.029	0.029			7.1	7.1	18.4	18.4		
07/31/2020	5	5	0.039	0.039			6.9	6.9	19.3	19.3		
06/30/2020												
05/31/2020	6.4	6.4	0.048	0.048			7.01	7.01	26.3	26.3		
04/30/2020	7.2	7.2	0.036	0.036			7	7	20	20	0.00392	0.00392
03/31/2020	9.1	9.1	0.039	0.039			7.6	7.6	19.4	19.4		
02/29/2020	6.2	6.2	0.023	0.023			7.7	7.7	15.6	15.6		
01/31/2020	3.5	3.5	0.024	0.024			6.9	6.9				
12/31/2019	3.5	3.5	0.027	0.027	38.2	63	6.9	6.9	12.4	12.4	0.00498	0.00498
11/30/2019			0.027	0.027			6.7	6.7			0.00205	0.00205
10/31/2019	5.7	5.7	0.019	0.019			6.8	6.8			0.118	0.118
09/30/2019												
08/31/2019	9.35	9.35	0.018	0.018			6.9	6.9				
07/31/2019	7.85	7.85	0.023	0.023			6.8	6.8	17	17	0.003	0.003
06/30/2019	9.85	9.85	0.033	0.033			6.8	6.8	22.8	22.8		
05/31/2019	12.4	12.4	0.033	0.033			6.9	6.9	14	14	0.506	0.506
04/30/2019												
03/31/2019			0.054	0.054			7.1	7.1	6.5	6.5	0.00149	0.00149
02/28/2019	4.8	4.8	0.054	0.054			7.1	7.1	8.7	8.7		
01/31/2019			0.0227	0.0227			6.7	6.7	13.9	13.9	0.0121	0.0121
12/31/2018	3.7	3.7	0.0279	0.0279	36.5	73	7.01	7.01	19.5	19.5	0.0448	0.0448
11/30/2018	9.1	9.1	0.0247	0.0247			6.9	6.9	24	24		
10/31/2018	8.65	8.65	0.0309	0.0309			7.2	7.2	31	31		
09/30/2018	13.3	13.3	0.029	0.029			7	7				
08/31/2018												
07/31/2018	10.6	10.6	0.036	0.036			7	7	8.8	8.8		
06/30/2018	3.6	3.6	0.0432	0.0432			7	7	11	11		
Min:	**3.5**	**3.5**	**0.011**	**0.011**	**33.9**	**37.6**	**6.3**	**6.3**	**5.05**	**5.05**	**0.001**	**0.001**
Max:	**22.3**	**22.3**	**0.11**	**0.11**	**38.2**	**73**	**7.8**	**7.8**	**31**	**31**	**0.506**	**0.506**
Average:	**8.60**	**8.60**	**0.03**	**0.03**	**36.14**	**60.12**	**7.03**	**7.03**	**15.12**	**15.12**	**0.040**	**0.04**
Permit Limit	**45**	**45**					**6.0**	**9.0**	**40**	**40**		

NODI B = Below Detection **NODI C = No Discharge**

Outfall SW2	BOD_5	Flow		Oil & Grease	pH	TSS
	Daily max. (mg/L)	Monthly avg. (MGD)	Daily max. (MGD)	Daily max. (mg/L)	Value (SU)	Daily max. (mg/L)
01/31/2023	7.53	0.444	0.444	7.58	8.1	646
07/31/2022	10.6	1.83	1.83		8.3	176
01/31/2022		0.79	0.79		7.2	362
07/31/2021						
01/31/2021	4.9	0.501	0.501		8	364
07/31/2020		1.08	1.08		8	63.2
01/31/2020		0.467	0.467		8.3	89.2
07/31/2019	5.7	0.718	0.718		8.1	75.8
01/31/2019	5.3	0.899	0.899		8.1	414
07/31/2018	16.9	1.26	1.26		8.34	254
		NODI B = Below Detection		NODI F = Insufficient Flow for Sampling		

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 (3232 MGD, USGS)
- Calcium hardness (64.7 mg/L, default)
- Total suspended solids (10.8 mg/L, default)
- Background metals concentrations (measured ambient)
- Other dischargers impacting this segment (none)
- Downstream water supplies, if applicable

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

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

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

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

The following formulas are used to evaluate water quality protection:

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

Where:

Cm = resulting instream concentration after mixing
Cw = concentration of pollutant in wastewater
Cs = stream background concentration
Qw = wastewater flow (STP Design flow)
Qs = stream low flow

To protect water quality:

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

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 (Cw). Under these circumstances, and in the event the "stream allocation" is less than 100%, the calculated chronic effluent limitation for fish and aquatic life should be equal to the chronic "In-stream Allowable" water quality criteria. These guidelines should be strictly followed where the industrial source water is not the receiving stream. Where the industrial source water is the receiving stream, and the measured background concentration is greater than the chronic "In-stream Allowable" water quality criteria, consideration may be given as to the degree to which the permittee should be required to meet the requirements of the water quality criteria in view of the nature and characteristics of the receiving stream.

The spreadsheet has 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:

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

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:

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

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:

2019 WQC

regulated stream worksheet (1Q10)

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

FACILITY:	PERMIT #:	DATE:	CALC BY:
Albemarle, US	TN0062537	4/22/2023	SMT

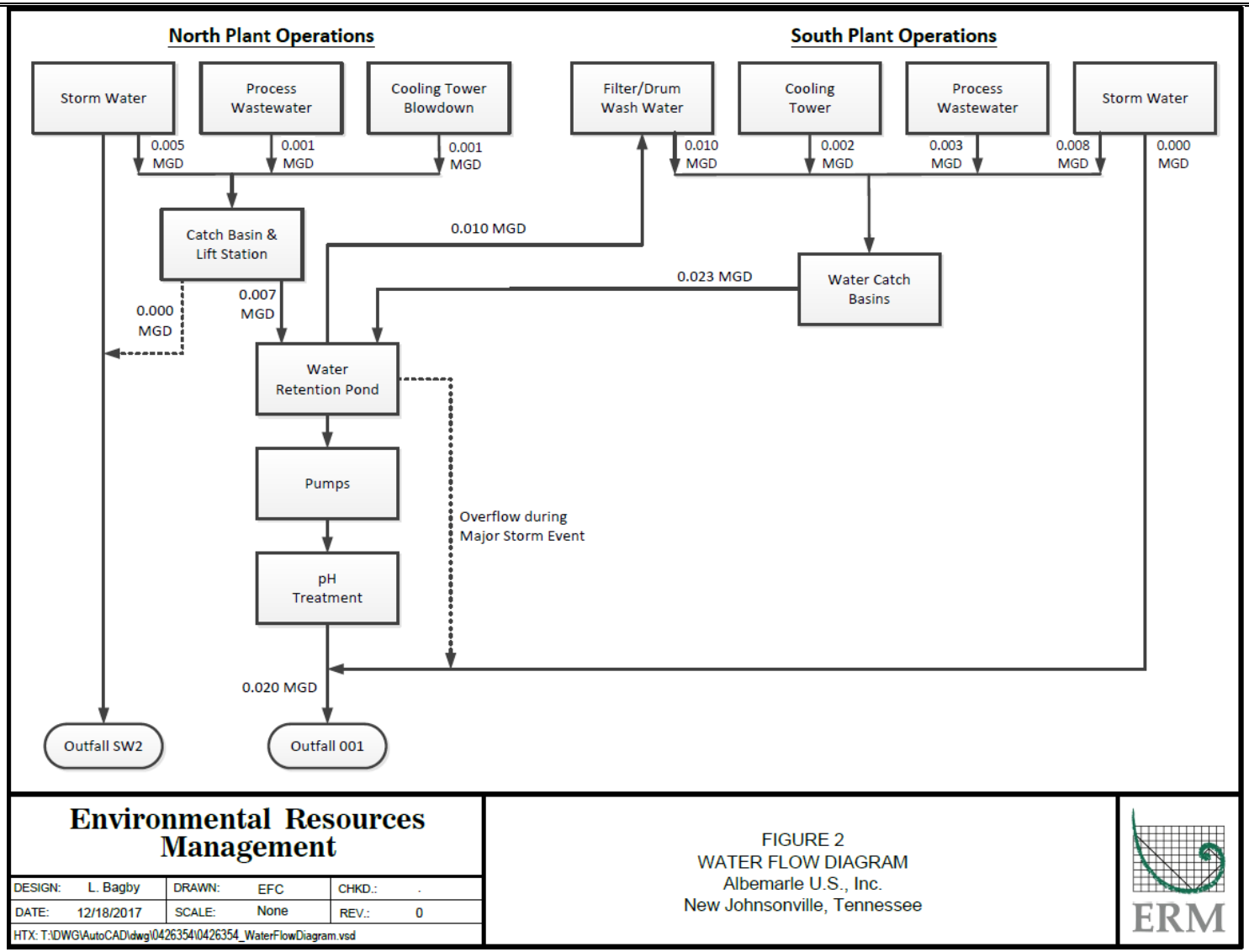
Stream (1Q10) [MGD]	Stream (30Q5) [MGD]	Waste Flow [MGD]	Ttl. Susp. Solids [mg/l]	Hardness (as CaCO3) [mg/l]	Margin of Safety [%]
3,231.50	9,694.50	0.03	10.8	64.7	50

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	
	Stream	Fish/Aqua. Life (F & AL) WQC			F & AL- instream allowable		Calc. Effluent Concentration		Human Health Water Quality Criteria *						Reported	
	Bckgrnd.	lab conditions		Fraction	ambient conditions (Tot)		based on F & AL		In-Stream Criteria			Calc. Effluent Concentration **			application	
	Conc.	Chronic	Acute	Dissolved	Chronic	Acute	Chronic	Acute	Organisms	Water/Organisms	DWS	Organisms	Water/Organisms	DWS	data	
PARAMETER	[ug/l]	[ug/l]	[ug/l]	[Fraction]	[ug/l]	[ug/l]	[ug/l]	[ug/l]	[ug/l]	[ug/l]	[ug/l]	[ug/l]	[ug/l]	[ug/l]	[ug/l]	**PARAMETER**
Copper (a,b)	1.277	6.173	8.917	0.217	28.494	41.156	**1465854.43**	**2147841.06**	N/A	N/A	N/A	**NA**	NA	NA	**10**	**Copper (a,b)**
Chromium III	1.586	51.884	398.864	0.074	697.271	5360.345	**37468769.52**	**288616504.39**	N/A	N/A	N/A	**NA**	NA	NA	**10**	**Chromium III**
Chromium VI	1.586	11.000	16.000	1.000	11.000	16.000	**507027.85**	**776322.02**	N/A	N/A	N/A	**NA**	NA	NA	**10**	**Chromium VI**
Chromium, Total	1.586	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	100.0	**NA**	NA	15,901,292.05	**10**	**Chromium, Total**
Nickel (a,b)	0.920	35.982	323.959	0.203	177.486	1597.981	**9509638.35**	**86015835.32**	4600.0	610.0	100.0	**743,098,586.37**	98,412,341.37	16,008,836.37	**10**	**Nickel (a,b)**
Cadmium (a,b)	0.121	0.518	1.198	0.192	2.698	6.246	**138818.68**	**329898.93**	N/A	N/A	5.0	**NA**	NA	788,375.40	**2**	**Cadmium (a,b)**
Lead (a,b)	0.410	1.562	40.077	0.142	11.036	283.192	**572292.06**	**15230305.18**	N/A	N/A	5.0	**NA**	NA	741,664.07	**2**	**Lead (a,b)**
Mercury (T) (c)	0.017	0.770	1.400	1.000	0.770	1.400	**40539.55**	**74470.62**	0.051	0.05	2.0	**5,445.10**	5,283.53	320,355.75	**0.2**	**Mercury (T) (c)**
Silver (a,b,e)	0.761	N/A	1.521	1.000	NA	1.521	**N/A**	**40964.21**	N/A	N/A	N/A	**NA**	NA	NA	**5**	**Silver (a,b, e)**
Zinc (a,b)	3.110	81.691	81.028	0.122	667.633	662.216	**35790399.57**	**35498651.78**	26000.0	7400.0	N/A	**4,200,460,453.28**	1,195,156,153.28	NA	**50**	**Zinc (a,b)**
Cyanide (d)	2.600	5.200	22.000	1.000	5.200	22.000	**140034.27**	**1044862.67**	140.0	140.0	200.0	**22,200,475.00**	22,200,475.00	31,895,005.00	**5**	**Cyanide (d)**
Toluene									15000.0	1300.0	1000.0	**2,423,632,500.00**	210,048,150.00	161,575,500.00	**118.0**	**Toluene**
Benzene									510.0	22.0	5.0	**82,403,505.00**	3,554,661.00	807,877.50	**1.0**	**Benzene**
1,1,1 Trichloroethane									N/A	N/A	200.0	**NA**	NA	32,315,100.00	**1.0**	**1,1,1 Trichloroethane**
Ethylbenzene									2100.0	530.0	700.0	**339,308,550.00**	85,635,015.00	113,102,850.00	**1.0**	**Ethylbenzene**
Carbon Tetrachloride									16.0	2.3	5.0	**2,585,208.00**	371,623.65	807,877.50	**1.0**	**Carbon Tetrachloride**
Chloroform									4700.0	57.0	N/A	**759,404,850.00**	9,209,803.50	NA	**5.0**	**Chloroform**
Tetrachloroethylene									33.0	6.9	5.0	**5,331,991.50**	1,114,870.95	807,877.50	**1.0**	**Tetrachloroethylene**
Trichloroethylene									300.0	25.0	5.0	**48,472,650.00**	4,039,387.50	807,877.50	**1.0**	**Trichloroethylene**
1,2 trans Dichloroethylene									10000.0	140.0	100.0	**NA**	22,620,570.00	16,157,550.00	**1.0**	**1,2 trans Dichloroethylene**
Methylene Chloride									5900.0	46.0	5.0	**953,295,450.00**	7,432,473.00	NA		**Methylene Chloride**
Total Phenols									860000.0	10000.0	N/A	**138,954,930,000.00**	1,615,755,000.00	NA	**40**	**Total Phenols**
Naphthalene									N/A	N/A	N/A	**NA**	NA	NA		**Naphthalene**
Total Phthalates									N/A	N/A	N/A	**NA**	NA	NA		**Total Phthalates**
Chlorine (T. Res.)	0.000	11.000	19.000	1.000	11.000	19.000	**1184894.33**	**2046635.67**	NA	NA	NA	**NA**	NA	NA		**Chlorine (T. Res.)**
															= BDL	

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

* Domestic supply included in river use so pick from columns 7,8,12,13,14,15 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 30Q5 flow.

APPENDIX 4 – FACILITY DISCHARGES



Environmental Resources Management

DESIGN:	L. Bagby	DRAWN:	EFC	CHKD.:	.
DATE:	12/18/2017	SCALE:	None	REV.:	0

HTX: T:\DWG\AutoCAD\dwg\0426354\0426354_WaterFlowDiagram.vsd

FIGURE 2
WATER FLOW DIAGRAM
Albemarle U.S., Inc.
New Johnsonville, Tennessee

ERM

FACILITY DISCHARGES AND RECEIVING WATERS

OUTFALL 001	
LONGITUDE	LATITUDE
87-58-54	35-59-50

RECEIVING STREAM DISCHARGE ROUTE
Indian Creek Embayment of the Tennessee River at mile 98

FLOW (MGD)	DISCHARGE SOURCE
0.0040	Process wastewater
0.0130	Stormwater
0.0030	Cooling water
0.0100	Filter/drum wastewater
0.0300	**TOTAL DISCHARGE**

STREAM LOW FLOW (CFS) *	7Q10	1Q10	30Q5
	NA	5000.00	15000.00
(MGD)	NA	3231.50	9694.50

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

Treatment: Evaporation, Flocculation/sedimentation, Neutralization

* Reference: 1Q10 and 30Q5 Low Flow determination provided by George S. Law with USGS in 2008.

APPENDIX 5 –
NEW PERMIT LIMITS

Outfall 001							
Code	**Parameter**	**Qualifier**	**Value**	**Unit**	**Sample Type**	**Monitoring Frequency**	**Statistical Base**
00310	BOD, 5-day, 20 C	<=	45	mg/L	Grab	Monthly	Daily Maximum
00400	pH	>=	6.0	SU	Grab	Monthly	Daily Minimum
00400	pH	<=	9.0	SU	Grab	Monthly	Daily Maximum
00530	Total Suspended Solids (TSS)	<=	40	mg/L	Grab	Monthly	Daily Maximum
01132	Lithium, total (as Li)	Report	-	mg/L	Grab	Annual	Daily Maximum
01132	Lithium, total (as Li)	Report	-	mg/L	Grab	Annual	Monthly Average
50050	Flow	Report	-	MGD	Instantaneous	Monthly	Daily Maximum
50050	Flow	Report	-	MGD	Instantaneous	Monthly	Monthly Average

Outfall SW2							
Code	**Parameter**	**Qualifier**	**Value**	**Unit**	**Sample Type**	**Monitoring Frequency**	**Statistical Base**
00310	BOD, 5-day, 20 C *	<=	30	mg/L	Grab	Semiannual	Daily Maximum
00400	pH	Report	-	SU	Grab	Semiannual	Value
00530	Total Suspended Solids (TSS) *	<=	150	mg/L	Grab	Semiannual	Daily Maximum
00552	Oil and grease *	<=	15	mg/L	Grab	Semiannual	Daily Maximum
50050	Flow	Report	-	MGD	Estimate	Semiannual	Daily Maximum
50050	Flow	Report	-	MGD	Estimate	Semiannual	Monthly Average

* Values for these parameters are “Alert” only. Exceedances of alert values do not constitute a permit violation but indicate the permittee should evaluate the effectiveness of the SWPPP and BMPs onsite. See Part 4.1 – Definitions for more information.