



**TENNESSEE DEPARTMENT OF ENVIRONMENT AND CONSERVATION
DIVISION OF WATER POLLUTION CONTROL
401 CHURCH STREET
L & C ANNEX 6TH FLOOR
NASHVILLE TN 37243**

May 31, 2012

Mr. Tim Myers, Plant Manager
Bon L Manufacturing Company
e-copy: tmmyers@bonlalum.com
PO Box 279
State Highway 53
Carthage, TN 37030

Subject: **NPDES Permit No. TN0002593
Bon L Manufacturing Company
Carthage, Smith County, Tennessee**

Dear Mr. Myers:

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

Please be advised that a petition for permit appeal may be filed, pursuant to T.C.A. Section 69-3-105, subsection (i), by the permit applicant or by any aggrieved person who participated in the public comment period or gave testimony at a formal public hearing whose appeal is based upon any of the issues that were provided to the commissioner in writing during the public comment period or in testimony at a formal public hearing on the permit application. Additionally, for those permits for which the department gives public notice of a draft permit, any permit applicant or aggrieved person may base a permit appeal on any material change to conditions in the final permit from those in the draft, unless the material change has been subject to additional opportunity for public comment. Any petition for permit appeal under this subsection (i) shall be filed with the board within thirty (30) days after public notice of the commissioner's decision to issue or deny the permit.

If you have questions, please contact the Cookeville Environmental Field Office at 1-888-891-TDEC; or, at this office, please contact Miss Julie Harse at (615) 532-0682 or by E-mail at Julie.Harse@tn.gov.

Sincerely,

Vojin Janjić
Manager, Permit Section
Division of Water Pollution Control

Enclosure

cc: Permit Section File
Cookeville Environmental Field Office (Karina.Bynum@tn.gov)
Ms. Connie A. Kagey, NPDES Permit Section, EPA Region IV, Kagey.Connie@epamail.epa.gov
Mr. Barry Cohoon, Environmental Manager, Bon L Mfg. Co., bbcchoon@bonlalum.com



No. TN0002593

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

Issued By

**Tennessee Department of Environment and Conservation
Division of Water Pollution Control
401 Church Street
6th Floor, L & C Annex
Nashville, Tennessee 37243-1534**

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

Discharger: **Bon L Manufacturing Company**
is authorized to discharge: **industrial process wastewater through Outfall 001**
from a facility located: **in Carthage, Smith County, Tennessee**
to receiving waters named: **Caney Fork River at mile 8.6**

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

This permit shall become effective on: **July 1, 2012**

This permit shall expire on: **May 31, 2017**

Issuance date: **May 31, 2012**

A handwritten signature in blue ink, appearing to read "G. Wiggins".

Garland P. Wiggins, Deputy Director
Division of Water Pollution Control

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PART I

A. EFFLUENT LIMITATIONS AND MONITORING REQUIREMENTS

Bon L Manufacturing Company is authorized to discharge industrial process wastewater through Outfall 001 to Caney Fork River at mile 8.6.

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

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

<u>Parameter</u>	<u>Qualifier</u>	<u>Value</u>	<u>Unit</u>	<u>Sample Type</u>	<u>Frequency</u>	<u>Statistical Base</u>
Aluminum, total (as Al)	<=	19.82	lb/d	Composite	Weekly	Monthly Average
Aluminum, total (as Al)	<=	38.42	lb/d	Composite	Weekly	Daily Maximum
Chromium, total (as Cr)	<=	1.01	lb/d	Composite	Monthly	Monthly Average
Chromium, total (as Cr)	<=	2.46	lb/d	Composite	Monthly	Daily Maximum
Cyanide, total (as CN)	<=	.19	lb/d	Grab	Quarterly	Monthly Average
Cyanide, total (as CN)	<=	1.43	lb/d	Grab	Quarterly	Daily Maximum
Flow*	Report	-	Mgal/d	Instantaneous	Continuous	Daily Maximum
Flow*	Report	-	Mgal/d	Instantaneous	Continuous	Monthly Average
Fluoride	<=	300	mg/L	Composite	Weekly	Monthly Average
Fluoride	<=	500	mg/L	Composite	Weekly	Daily Maximum
LC50 Static 48Hr Acute Ceriodaphnia***	>=	2.5	%	Grab	See Permit	Minimum
LC50 Static 48Hr Acute Pimephales***	>=	2.5	%	Grab	See Permit	Minimum
Oil and grease, hexane extr method	<=	30	mg/L	Grab	Weekly	Daily Maximum
Oil and grease, hexane extr method	<=	15	mg/L	Grab	Weekly	Monthly Average
Oil and grease, hexane extr method	<=	254	lb/d	Grab	Weekly	Monthly Average
Oil and grease, hexane extr method	<=	451	lb/d	Grab	Weekly	Daily Maximum
Total Suspended Solids (TSS)	<=	70	mg/L	Grab	Weekly	Daily Maximum
Total Suspended Solids	<=	50	mg/L	Grab	Weekly	Monthly

(TSS)						Average
Total Suspended Solids (TSS)	<=	413	lb/d	Grab	Weekly	Monthly Average
Total Suspended Solids (TSS)	<=	868	lb/d	Grab	Weekly	Daily Maximum
Zinc, total (as Zn)	<=	8.23	lb/d	Composite	Monthly	Daily Maximum
Zinc, total (as Zn)	<=	3.46	lb/d	Composite	Monthly	Monthly Average
pH**	>=	7	SU	Grab	Weekly	Minimum
pH**	<=	9	SU	Grab	Weekly	Maximum

Description : External Outfall, Number : 001, Monitoring : Effluent Gross, Season : Summer

<u>Parameter</u>	<u>Qualifier</u>	<u>Value</u>	<u>Unit</u>	<u>Sample Type</u>	<u>Frequency</u>	<u>Statistical Base</u>
Ammonia nitrogen, total, (as N) 30 day	<=	5	mg/L	Composite	Weekly	Monthly Average
Ammonia nitrogen, total, (as N) 30 day	<=	10	mg/L	Composite	Weekly	Daily Maximum

Description : External Outfall, Number : 001, Monitoring : Effluent Gross, Season : Winter

<u>Parameter</u>	<u>Qualifier</u>	<u>Value</u>	<u>Unit</u>	<u>Sample Type</u>	<u>Frequency</u>	<u>Statistical Base</u>
Ammonia nitrogen, total, (as N) 30 day	<=	20	mg/L	Composite	Weekly	Daily Maximum
Ammonia nitrogen, total, (as N) 30 day	<=	10	mg/L	Composite	Weekly	Monthly Average

* Flow shall be reported in Million Gallons per Day (MGD).

** pH analyses shall be performed within fifteen (15) minutes of sample collection.

*** See Part III for methodology and frequency.

Additional monitoring requirements and conditions applicable to Outfall 001 include:

There shall be no distinctly visible floating 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.

The wastewater discharge shall not contain pollutants in quantities that will be hazardous or otherwise detrimental to humans, livestock, wildlife, plant life, or fish and aquatic life in the receiving stream.

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

B. MONITORING PROCEDURES

1. Representative Sampling

Samples and measurements taken in compliance with the monitoring requirements specified herein shall be representative of the volume and nature of the monitored discharge, and shall be taken after treatment and prior to mixing with uncontaminated storm water runoff or the receiving stream.

2. Sampling Frequency

If there is a discharge from a permitted outfall on any given day during the monitoring period, the permittee must sample and report the results of analyses accordingly, and the permittee should not mark the 'No Discharge' box on the Discharge Monitoring Report form.

3. Test Procedures

- a. Test procedures for the analysis of pollutants shall conform to regulations published pursuant to Section 304 (h) of the Clean Water Act (the "Act"), as amended, under which such procedures may be required.
- b. Unless otherwise noted in the permit, all pollutant parameters shall be determined according to methods prescribed in Title 40, CFR Part 136, as amended, promulgated pursuant to Section 304 (h) of the Act.

In instances where permit limits established through implementation of applicable water criteria are below analytical capabilities, compliance with those limits will be determined using the detection limits described in the TN Rules, Chapter 1200-4-3-.05(8).

4. Recording of Results

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

- a. The exact place, date and time of sampling;
- b. The exact person(s) collecting samples;
- c. The dates and times the analyses were performed;
- d. The person(s) or laboratory who performed the analyses;
- e. The analytical techniques or methods used, and;
- f. The results of all required analyses.

5. Records Retention

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

C. DEFINITIONS

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

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

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

For the purposes of this permit, a **Composite Sample** for non-storm water discharges is a composite sample of at least 24 grab samples collected at regular intervals over a period of 24-hours.

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

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

Degradation means the alteration of the properties of waters by the addition of pollutants or removal of habitat.

De Minimis – Alterations, other than those resulting in the condition of pollution or new domestic wastewater discharges, that represent either a small magnitude or a short duration shall be considered a *de minimis* impact and will not be considered degradation for purposes of implementing the antidegradation policy. Discharges other than domestic wastewater will be considered *de minimis* if they are temporary or use less than five percent of the available assimilative capacity for the substance being discharged. If more than one activity has been authorized in a segment and the total of the impacts uses no more than ten percent of the assimilative capacity, available habitat, or 7Q10 low flow, they are presumed to be *de minimis*. Where total impacts use more than ten percent of the assimilative capacity, available habitat, or 7Q10 low flow they may be treated as *de minimis* provided that the division finds on a scientific

basis that the additional degradation has an insignificant effect on the resource and that no single activity is allowed to consume more than five percent of the assimilative capacity, available habitat or 7Q10 low flow.

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

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

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

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

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

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

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

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

Pollutant means sewage, industrial wastes, or other wastes.

A **Qualifying Storm Event** is one which is greater than 0.1 inches and that occurs after a period of at least 72 hours after any previous storm event with rainfall of 0.1 inches or greater.

For the purpose of this permit, a **Quarter** is defined as any one of the following three month periods: January 1 through March 31, April 1 through June 30, July 1 through September 30, or October 1 through December 31.

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

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

A **reference site** means 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.

For the purpose of this permit, **Semi-annually** means the same as "once every six months." Measurements of the effluent characteristics concentrations may be made anytime during a 6 month period beginning from the issuance 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.

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

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 activated sludge plants and is defined as loss of mixed liquor suspended solids (MLSS) of 30.00% or more from the aeration basin(s).

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

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

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

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

D. ACRONYMS AND ABBREVIATIONS

1Q10 – 1-day minimum, 10-year recurrence interval
30Q20 – 30-day minimum, 20-year recurrence interval
7Q10 – 7-day minimum, 10-year recurrence interval
BAT – best available technology economically achievable
BCT – best conventional pollutant control technology
BDL – below detection level
BOD₅ – five day biochemical oxygen demand
BPT – best practicable control technology currently available
CBOD₅ – 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*
EFO – environmental field office
LB(lb) - pound
IC₂₅ – inhibition concentration causing 25% reduction in survival, reproduction and growth of the test organisms
IU – industrial user
IWS – industrial waste survey
LC₅₀ – acute test causing 50% lethality
MDL – method detection level
MGD – million gallons per day
MG/L(mg/l) – milligrams per liter
ML – minimum level of quantification
ml – milliliter
MLSS – mixed liquor suspended solids
MOR – monthly operating report
NODI – no discharge
NOEC – no observed effect concentration
NPDES – national pollutant discharge elimination system
PL – permit limit
POTW – publicly owned treatment works
RDL – required detection limit
SAR – semi-annual [pretreatment program] report
SIU – significant industrial user
SSO – sanitary sewer overflow

STP – sewage treatment plant
TCA – Tennessee code annotated
TDEC – Tennessee Department of Environment and Conservation
TIE/TRE – toxicity identification evaluation/toxicity reduction evaluation
TMDL – total maximum daily load
TRC – total residual chlorine
TSS – total suspended solids
WQBEL – water quality based effluent limit

E. REPORTING

1. Monitoring Results

Monitoring results shall be recorded monthly and submitted monthly using Discharge Monitoring Report (DMR) forms supplied by the Division of Water Pollution Control. Submittals shall be postmarked no later than 15 days after the completion of the reporting period. A completed DMR with an original signature shall be submitted to the following address:

**TENNESSEE DEPT. OF ENVIRONMENT & CONSERVATION
DIVISION OF WATER POLLUTION CONTROL
ENFORCEMENT & COMPLIANCE SECTION
L & C ANNEX 6TH FLOOR
401 CHURCH STREET
NASHVILLE TN 37243**

A copy of the completed and signed DMR shall be mailed to the Cookeville Environmental Field Office (EFO) at the following address:

**TENNESSEE DEPT. OF ENVIRONMENT & CONSERVATION
DIVISION OF WATER POLLUTION CONTROL
COOKEVILLE ENVIRONMENTAL FIELD OFFICE
1221 SOUTH WILLOW AVENUE
COOKEVILLE TN 38506**

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

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

DMRs and any other information or report must be signed and certified by a responsible corporate officer as defined in 40 CFR 122.22, a general partner or proprietor, or a principal municipal executive officer or ranking elected official, or his duly authorized representative. Such authorization must be submitted in writing and must explain the duties and responsibilities of the authorized representative.

The electronic submission of DMR data will be accepted only if formally approved beforehand by the division. For purposes of determining compliance with this permit, data

approved by the division to be submitted electronically is legally equivalent to data submitted on signed and certified DMR forms.

2. Additional Monitoring by Permittee

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

3. Falsifying Results and/or Reports

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

4. Outlier Data

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

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

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

F. SCHEDULE OF COMPLIANCE

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

PART II

A. GENERAL PROVISIONS

1. Duty to Reapply

Permittee is not authorized to discharge after the expiration date of this permit. In order to receive authorization to discharge beyond the expiration date, the permittee shall submit such information and forms as are required to the Director of Water Pollution Control (the "Director") no later than 180 days prior to the expiration date. Such applications must be properly signed and certified.

2. Right of Entry

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

- a. To enter upon the permittee's premises where an effluent source is located or where records are required to be kept under the terms and conditions of this permit, and at reasonable times to copy these records;
- b. To inspect at reasonable times any monitoring equipment or method or any collection, treatment, pollution management, or discharge facilities required under this permit; and
- c. To sample at reasonable times any discharge of pollutants.

3. Availability of Reports

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

4. Proper Operation and Maintenance

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

- b. Dilution water shall not be added to comply with effluent requirements to achieve BCT, BPT, BAT and or other technology-based effluent limitations such as those in State of Tennessee Rule 1200-4-5-.09.

5. Treatment Facility Failure

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

6. Property Rights

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

7. Severability

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

8. Other Information

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

B. CHANGES AFFECTING THE PERMIT

1. Planned Changes

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

- a. The alteration or addition to a permitted facility may meet one of the criteria for determining whether a facility is a new source in 40 CFR 122.29(b); or
- b. The alteration or addition could significantly change the nature or increase the quantity of pollutants discharged. This notification applies to pollutants which are subject neither to effluent limitations in the permit, nor to notification requirements under 40 CFR 122.42(a)(1).

2. Permit Modification, Revocation, or Termination

- a. This permit may be modified, revoked and reissued, or terminated for cause as described in 40 CFR 122.62 and 122.64, Federal Register, Volume 49, No. 188 (Wednesday, September 26, 1984), as amended.
- b. The permittee shall furnish to the Director, within a reasonable time, any information which the Director may request to determine whether cause exists for modifying, revoking and reissuing, or terminating this permit, or to determine compliance with this permit. The permittee shall also furnish to the Director, upon request, copies of records required to be kept by this permit.
- c. If any applicable effluent standard or prohibition (including any schedule of compliance specified in such effluent standard or prohibition) is established for any toxic pollutant under Section 307(a) of the Federal Water Pollution Control Act, as amended, the Director shall modify or revoke and reissue the permit to conform to the prohibition or to the effluent standard, providing that the effluent standard is more stringent than the limitation in the permit on the toxic pollutant. The permittee shall comply with these effluent standards or prohibitions within the time provided in the regulations that establish these standards or prohibitions, even if the permit has not yet been modified or revoked and reissued to incorporate the requirement.
- d. The filing of a request by the permittee for a modification, revocation, reissuance, termination, or notification of planned changes or anticipated noncompliance does not halt any permit condition.

3. Change of Ownership

This permit may be transferred to another party (provided there are neither modifications to the facility or its operations, nor any other changes which might affect the permit limits and conditions contained in the permit) by the permittee if:

- a. The permittee notifies the Director of the proposed transfer at least 30 days in advance of the proposed transfer date;
- b. The notice includes a written agreement between the existing and new permittees containing a specified date for transfer of permit responsibility, coverage, and liability between them; and
- c. The Director, within 30 days, does not notify the current permittee and the new permittee of his intent to modify, revoke or reissue, or terminate the permit and to require that a new application be filed rather than agreeing to the transfer of the permit.

Pursuant to the requirements of 40 CFR 122.61, concerning transfer of ownership, the permittee must provide the following information to the division in their formal notice of intent to transfer ownership: 1) the NPDES permit number of the subject permit; 2) the effective date of the proposed transfer; 3) the name and address of the transferor; 4) the name and address of the transferee; 5) the names of the responsible parties for both the transferor and transferee; 6) a statement that the transferee assumes responsibility for the subject NPDES permit; 7) a statement that the transferor relinquishes responsibility for the subject NPDES permit; 8) the

signatures of the responsible parties for both the transferor and transferee pursuant to the requirements of 40 CFR 122.22(a), "Signatories to permit applications"; and, 9) a statement regarding any proposed modifications to the facility, its operations, or any other changes which might affect the permit limits and conditions contained in the permit.

4. Change of Mailing Address

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

C. NONCOMPLIANCE

1. Effect of Noncompliance

All discharges shall be consistent with the terms and conditions of this permit. Any permit noncompliance constitutes a violation of applicable State and Federal laws and is grounds for enforcement action, permit termination, permit modification, or denial of permit reissuance.

2. Reporting of Noncompliance

a. 24-Hour Reporting

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

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

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

b. Scheduled Reporting

For instances of noncompliance which are not reported under subparagraph 2.a. above, the permittee shall report the noncompliance on the Discharge Monitoring Report. The report shall contain all information concerning the steps taken, or planned, to reduce, eliminate, and prevent recurrence of the violation and the anticipated time the violation is expected to continue.

3. Sanitary Sewer Overflow

- a. "**Sanitary Sewer Overflow**" means the discharge to land or water of wastes from any portion of the collection, transmission, or treatment system other than through permitted outfalls.
- b. Sanitary Sewer Overflows are prohibited.
- c. The permittee shall operate the collection system so as to avoid sanitary sewer overflows. No new or additional flows shall be added upstream of any point in the collection system, which experiences chronic sanitary sewer overflows (greater than 5 events per year) or would otherwise overload any portion of the system.
- d. Unless there is specific enforcement action to the contrary, the permittee is relieved of this requirement after: 1) an authorized representative of the Commissioner of the Department of Environment and Conservation has approved an engineering report and construction plans and specifications prepared in accordance with accepted engineering practices for correction of the problem; 2) the correction work is underway; and 3) the cumulative, peak-design, flows potentially added from new connections and line extensions upstream of any chronic overflow point are less than or proportional to the amount of inflow and infiltration removal documented upstream of that point. The inflow and infiltration reduction must be measured by the permittee using practices that are customary in the environmental engineering field and reported in an attachment to a Monthly Operating Report submitted to the regional TDEC Field Office. The data measurement period shall be sufficient to account for seasonal rainfall patterns and seasonal groundwater table elevations.
- e. In the event that more than five (5) sanitary sewer overflows have occurred from a single point in the collection system for reasons that may not warrant the self-imposed moratorium or completion of the actions identified in this paragraph, the permittee may request a meeting with the Division of Water Pollution Control field office staff to petition for a waiver based on mitigating evidence.

4. Upset

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

- b. An upset shall constitute an affirmative defense to an action brought for noncompliance with such technology-based permit effluent limitations if the permittee demonstrates, through properly signed, contemporaneous operating logs, or other relevant evidence that:
 - i. An upset occurred and that the permittee can identify the cause(s) of the upset;
 - ii. The permitted facility was at the time being operated in a prudent and workman-like manner and in compliance with proper operation and maintenance procedures;
 - iii. The permittee submitted information required under "Reporting of Noncompliance" within 24-hours of becoming aware of the upset (if this information is provided orally, a written submission must be provided within five days); and
 - iv. The permittee complied with any remedial measures required under "Adverse Impact."

5. Adverse Impact

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

6. Bypass

- a. "**Bypass**" is the intentional diversion of wastewater away from any portion of a treatment facility. "Severe property damage" means substantial physical damage to property, damage to the treatment facilities, which would cause them to become inoperable, or substantial and permanent loss of natural resources which can reasonably be expected to occur in the absence of a bypass. Severe property damage does not mean economic loss caused by delays in production.
- b. Bypasses are prohibited unless the following 3 conditions are met:
 - i. The bypass is unavoidable to prevent loss of life, personal injury, or severe property damage;
 - ii. There are not feasible alternatives to bypass, such as the use of auxiliary treatment facilities, retention of untreated wastes, or maintenance during normal periods of equipment down-time. This condition is not satisfied if adequate back-up equipment should have been installed in the exercise of reasonable engineering judgment to prevent a bypass, which occurred during normal periods of equipment down-time or preventative maintenance;

- iii. The permittee submits notice of an unanticipated bypass to the Division of Water Pollution Control in the appropriate environmental assistance center within 24-hours of becoming aware of the bypass (if this information is provided orally, a written submission must be provided within five days). When the need for the bypass is foreseeable, prior notification shall be submitted to the Director, if possible, at least 10 days before the date of the bypass.
- c. Bypasses not exceeding limitations are allowed **only** if the bypass is necessary for essential maintenance to assure efficient operation. All other bypasses are prohibited. Allowable bypasses not exceeding limitations are not subject to the reporting requirements of 6.b.iii, above.

7. 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 decrease due to solids wasting to the sludge disposal system. A washout can be caused by improper operation or from peak flows due to infiltration and inflow.
- b. A washout is prohibited. If a washout occurs the permittee must report the incident to the Division of Water Pollution Control in the appropriate regional Field Office within 24-hours by telephone. A written submission must be provided within 5 days. The washout must be noted on the discharge monitoring report. Each day of a washout is a separate violation.

D. LIABILITIES

1. Civil and Criminal Liability

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

2. Liability Under State Law

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

PART III

OTHER REQUIREMENTS

A. TOXIC POLLUTANTS

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

1. That any activity has occurred or will occur which would result in the discharge on a routine or frequent basis, of any toxic substance(s) (listed at 40 CFR 122, Appendix D, Table II and III) which is not limited in the permit, if that discharge will exceed the highest of the following "notification levels":
 - a. One hundred micrograms per liter (100 ug/l);
 - b. Two hundred micrograms per liter (200 ug/l) for acrolein and acrylonitrile; five hundred micrograms per liter (500 ug/l) for 2,4-dinitrophenol and for 2-methyl-4,6-dinitrophenol; and one milligram per liter (1 mg/L) for antimony;
 - c. Five (5) times the maximum concentration value reported for that pollutant(s) in the permit application in accordance with 122.21(g)(7); or
 - d. The level established by the Director in accordance with 122.44(f).
2. That any activity has occurred or will occur which would result in any discharge, on a non-routine or infrequent basis, of a toxic pollutant which is not limited in the permit, if that discharge will exceed the highest of the following "notification levels":
 - a. Five hundred micrograms per liter (500 ug/l);
 - b. One milligram per liter (1 mg/L) for antimony;
 - c. Ten (10) times the maximum concentration value reported for that pollutant in the permit application in accordance with 122.21(g)(7); or
 - d. The level established by the Director in accordance with 122.44(f).

B. REOPENER CLAUSE

If an applicable standard or limitation is promulgated under Sections 301(b)(2)(C) and (D), 304(B)(2), and 307(a)(2) and that effluent standard or limitation is more stringent than any effluent limitation in the permit or controls a pollutant not limited in the permit, the permit shall be promptly modified or revoked and reissued to conform to that effluent standard or limitation.

C. PLACEMENT OF SIGNS

Within sixty (60) days of the effective date of this permit, the permittee shall place and maintain a sign(s) at each outfall and any bypass/overflow point in the collection system. For the purposes of this requirement, any bypass/overflow point that has discharged five (5) or more times in the last year must be so posted. The sign(s) should be clearly visible to the public from the bank and the receiving stream or from the nearest public property/right-of-way, if applicable. The minimum sign size should be two feet by two feet (2' x 2') with one inch (1") letters. The sign should be made of durable material and have a white background with black letters.

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

<p>TREATED INDUSTRIAL WASTEWATER Bon L Manufacturing Company (Permittee's Phone Number) NPDES Permit NO. TN0002593 TENNESSEE DIVISION OF WATER POLLUTION CONTROL 1-888-891-8332 ENVIRONMENTAL FIELD OFFICE - Cookeville</p>

D. ANTIDegradation

Pursuant to the Rules of the Tennessee Department of Environment and Conservation, Chapter 1200-4-3-.06, titled "Tennessee Antidegradation Statement," which prohibits the degradation of high quality surface waters and the increased discharges of substances that cause or contribute to impairment, the permittee shall further be required, pursuant to the terms and conditions of this permit, to comply with the effluent limitations and schedules of compliance required to implement applicable water quality standards, to comply with a State Water Quality Plan or other state or federal laws or regulations, or where practicable, to comply with a standard permitting no discharge of pollutants.

E. BIOMONITORING REQUIREMENTS, ACUTE

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

The measured endpoint for toxicity will be the concentration causing 50% lethality (LC50) of the test organisms. The LC50 shall be determined based on a 50% lethality as compared to the controls.

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

Serial Dilutions for Whole Effluent Toxicity (WET) Testing					
4 X PL	2 X PL	Permit Limit (PL)	0.50 X PL	0.25 X PL	Control
% effluent					
10	5	2.5	1.3	0.63	0

The dilution/control water used will be a moderately hard water as described in [Methods for Measuring the Acute Toxicity of Effluents and Receiving Waters to Freshwater and Marine Organisms](#), EPA-821-R-02-012 (or the most current edition). Results from an acute standard reference toxicant quality assurance test for each species tested shall be submitted with the discharge monitoring report. Reference toxicant tests shall be conducted as required in EPA-821-R-02-012 (or the most current edition). Additionally, the analysis of this multi-concentration test shall include review of the concentration-response relationship to ensure that calculated test results are interpreted appropriately.

Toxicity will be demonstrated if the LC50 is less than or equal to the permit limit indicated for each outfall in the above table(s). Toxicity demonstrated by the tests specified herein constitutes a violation of this permit.

All tests will be conducted using four separate grab samples of final effluent, to be used in four separate tests, and shall be collected at evenly spaced (6-hour) intervals over a 24-hour period. If, in any control more than 10% of the test organisms die in 48 hours, the test (control and effluent) is considered invalid and the test shall be repeated within 30 days of the date the initial test is invalidated. Furthermore, if the results do not meet the acceptability criteria as defined in [Methods for Measuring the Acute Toxicity of Effluents and Receiving Waters to Freshwater and Marine Organisms](#), EPA-821-R-02-012, or if the required concentration-response review fails to yield a valid relationship per guidance contained in Method Guidance and Recommendations for Whole Effluent Toxicity (WET) Testing, EPA-821-B-00-004 (or the most current edition), that test shall be repeated. Any test initiated but terminated before completion must also be reported along with a complete explanation for the termination.

The toxicity tests specified herein shall be conducted once, within 180 days of effective date of this permit. If the effluent does not exhibit any toxicity during the first test, WET testing will not be required during the term of this permit. If the WET testing does show toxicity of the effluent, toxicity tests specified herein shall be conducted annually from thereon for the duration of the permit.

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

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

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

Test procedures, quality assurance practices and determination of effluent lethality values will be made in accordance with [Methods for Measuring the Acute Toxicity of Effluents and Receiving Waters to Freshwater and Marine Organisms](#), EPA-821-R-02-012, or the most current edition.

Results of all tests, reference toxicant information, copies of raw data sheets, statistical analysis and chemical analysis shall be compiled in a report. The report shall be written in accordance with [Methods for Measuring the Acute Toxicity of Effluents and Receiving Waters to Freshwater and Marine Organisms](#), EPA-821-R-02-012, or the most current edition.

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

**Environmental Field Office - Cookeville
Division of Water Pollution Control
1221 South Willow Avenue
Cookeville, TN 38506**

RATIONALE

Bon L Manufacturing Company
NPDES PERMIT NO. TN0002593
Carthage, Smith County, Tennessee

Permit Writer: Miss Julie Harse

I. DISCHARGER

Bon L Manufacturing Company
279 Bonnell Lane
Carthage, Smith County, Tennessee
Site Longitude: -85.941944 Site Latitude: 36.205

Official Contact Person:
Mr. Tim Myers
Plant Manager
(866) 683-8291

Nature of Business:
Aluminum extrusion plant. Casts aluminum logs that are used in the extrusion process. Some are painted, anodized or fabricated; Modification ads conditions associated with a change in industrial process and a small increase in discharge flow rate.

SIC Code(s): 3354
Industrial Classification: Primary
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]).

II. PERMIT STATUS

Issued April 30, 2009
Expired April 30, 2012
Application for renewal received October 7, 2011

Watershed Scheduling

Environmental Field Office: Cookeville
Hydrocode: 5130108 Watershed Group: 2
Watershed Identification: Caney Fork
Target Reissuance Year: 2017

III. FACILITY DISCHARGES AND RECEIVING WATERS

Bon L Manufacturing Company discharges industrial process wastewater through Outfall 001 to Caney Fork River at mile 8.6. The wastewater treatment system consists of two treatment lines with effluents combined prior to sampling and discharge. Paint line wastewater treatment consists of chromium reduction, flocculation, clarification and filtration. All other industrial wastewater goes through batch chemical treatment in complete mix flocculation tanks and a clarifier. Wastewater from casting operations goes through an oil/water separator prior to batch chemical treatment. Ammonia stripping tower has been added for treatment of wastewater from the new acid etch process. Domestic wastewater is discharged to the Gordonsville STP. Appendix 1 summarizes facility discharges and the receiving stream information for Outfall 001.

Storm water discharges associated with the industrial activity of this facility are covered by the Tennessee Multi-Sector General Storm Water Permit TNR053907. Storm water concerns associated with this facility are covered in this general permit and will, therefore, not be addressed in the new permit.

IV. APPLICABLE EFFLUENT LIMITATIONS GUIDELINES

The Standard Industrial Classification (SIC) codes for Bon L Manufacturing Company are 3354 (Aluminum Extruded Product), 3341 (Sec. Smelting and Refining Non-Ferrous Metal), 3471 (Anodizing and Coloring), and 3446 (Architectural and Ornamental Metal Work). Process wastewater discharged through Outfall 001 is regulated by 40 CFR Part 467 - (Aluminum Forming Point Source Category). Appendix 2 lists the applicable best available technology (BAT) and best conventional pollution control technology (BCT) effluent limitations guidelines for Subpart C - (Extrusion Subcategory). In calculating the effluent guideline permit limits for this permit issuance, discussions with the facility resulted in a significant change in the production number utilized for the "press heat treat" category. The facility's extrusion rate listed under the category titled "core" is 0.270 MM lbs/day. Since the facility utilizes pressure heat treatment for all of the aluminum that is extruded (core category), the value for the "press heat treat" and "core" categories should be the same. The previous value used for the "press heat treat" category was 0.003 MM lbs/day. It should also be noted that facility casts aluminum ingots for other facilities in addition to the Tennessee plant. This accounts for the casting production rate being significantly higher than the extrusion rate.

V. PREVIOUS PERMIT LIMITS AND MONITORING REQUIREMENTS

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

VI. HISTORICAL MONITORING AND INSPECTION

During the previous permit term, Bon L Manufacturing Company did not have any appreciable difficulty in meeting effluent limitations as outlined in the previous permit. A summary of the data reported on Discharge Monitoring Report forms during the previous permit term is summarized in Appendix 4.

During the previous permit term, the Division's personnel from the Cookeville Environmental Field Office performed a Compliance Evaluation Inspection (CEI) of the Bon L

Manufacturing Company. The CEI was performed by Karina Bynum on December 16, 2011. The inspection determined that the facility was in compliance with its permit.

VII. NEW PERMIT LIMITS AND MONITORING REQUIREMENTS

The proposed new permit limits have been selected by determining a technology-based limit and evaluating if that limit protects the water quality of the receiving stream. If the technology-based limit would cause violations of water quality, the water quality-based limit is chosen. The technology-based limit is determined from EPA effluent limitations guidelines if applicable (see Part IV); or from State of Tennessee maximum effluent limits for effluent limited segments per Rule 1200-4-5-.08; or by way of operational and/or treatability data. Furthermore, effluent limitations in this permit must comply with any approved Total Maximum Daily Load (TMDL) studies. Appendix 5 lists all proposed effluent limitations and monitoring requirements to be included in the new permit. 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.

Stream Flow Rate

The stream flow rate utilized in previous permits was taken from USGS station 03424500 which included a period of record of 1922-1958. In this permit renewal, the U.S. Corps of Engineers was contacted to obtain an updated flow rate out of Center Hill Dam. Based on the emails with the U.S. Corps of Engineers, there is no minimum guaranteed flow rate out of the dam. During periods when the dam is shut off, orifice/sluice gates (1500 cfs, 250 cfs) can be opened to release water to address water quality and/or drought issues. Additionally, the seepage flow around the dam is typically 60-100 cfs. The previous permit stream flow rate of 1Q10=27 cfs and 30Q5=200 cfs will continue to be utilized to simulate the most restrictive period when the dam is shut down.

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.

pH

According to the State of Tennessee Water Quality Standards [Chapter 1200-4-3-.03(3) (b)], the pH for the protection of Fish and Aquatic Life shall lie within the range of 6.5 to 9.0 for non-wadeable streams and shall not fluctuate more than 1.0 unit in this range over a period of 24-hours. The federal effluent guidelines require a pH range of 7.0 to 10.0. In order to meet both the state and federal pH requirements, effluent limitation for pH will be retained in a range 7.0 to 9.0. The sample type will be grab and the monitoring frequency will be weekly.

Total Suspended Solids (TSS), Oil and Grease (O&G)

According to the State of Tennessee Water Quality Standards for the protection of Fish & Aquatic Life [Chapter 1200-4-3-.03(3) (c)], there shall be no distinctly visible solids, scum, foam, oily slick, or the formation of slimes, bottom deposits or sludge banks of such size or character that may be detrimental to fish and aquatic life in the receiving stream.

The federal effluent guidelines provide limitations for TSS and O&G based on the production poundage. The poundage limitations are calculated in Appendix 2. In addition to the required poundage limits, the previous permit contained concentration limits based on the permit writer's best professional judgment. The concentration limits will be retained in the new permit.

The utilization of the new value for "press heat treat" resulted in the poundage limits increasing slightly for TSS and O&G. Since the change was due to a better understanding of the facility's manufacturing process instead of a production increase, the division will not apply the antidegradation requirements to the increase in limits.

Aluminum, Cyanide, Chromium, and Zinc

The federal effluent guidelines require poundage limitations for these metals based on the type of process wastewater. The production limitations were calculated in Appendix 2 and compared to the water quality limit in Appendix 5A. The more restrictive of the two values was given as a permit limit. The poundage limits for aluminum, chromium, and zinc that were based on effluent guidelines were lower for this permit cycle. Also the limit for cyanide was reduced due the water quality calculations allocating the only 50% of the stream capacity instead of 90%. The division is currently only allocating 50% of the stream capacity for facilities that discharge to a non-wadeable stream.

The facility requested that the monitoring frequency be reduced for cyanide. EPA's guidance for the performance based reduction in monitoring indicates that monitoring less than quarterly should typically not be allowed except in unusual situations. The cyanide monitoring will continue to be quarterly.

Floating Material, Color, Foam & Oil Sheen

The previous permit required the facility to report any floating material, color, foam and/or oil sheen on a weekly basis. The new permit will only require the generic narrative language instead of a specific monitoring requirement due to the subjective nature of the permit requirement.

Ammonia and Fluoride

During the permit cycle, the facility changed their manufacturing treatment system by modifying its caustic etching process to include an acid etch process. The acid that is utilized in the new process is ammonium bifluoride. The two chemicals of concern in the final wastewater effluent are ammonia and fluoride. The new wastewater stream increased the daily flow rate covered under the facility's individual permit by 0.025 MGD. Wastewater treatment through the use of pH adjustment, chemical coagulation, and precipitation results in the removal of aluminum fluoride and calcium fluoride. The air stripper provides a final treatment step for the removal of ammonia. The ammonia limits were based on the below de minimus calculations.

The de minimus calculations for fluoride resulted in an average concentration of 1030 mg/L. The facility's application has requested a limit of 100 mg/L as a technology-based value (See below chart for new permit limits).

De Minimus Calculations

New Process Ammonia De Minimus Calculations			Reference
Receiving Stream			
Receiving Stream	Caney Fork River @ mile 8.6	Units	
1Q10	17.5	MGD	USGS Low Flow pg. 18
3Q05	129.3	MGD	USGS Low Flow pg. 18
Summer Temperature	27	Celcius	Middle Tennessee Value
Winter Temperature	17	Celcius	Middle Tennessee Value
pH	8.0	SU	
Instream Summer CMC Ammonia Toxicity	5.62	mg/L	1999 EPA Document and State Rules for Trout Stream
Instream Summer CCC Ammonia Toxicity	1.09	mg/L	1999 EPA Document and State Rules for Early Life Stages
Instream Winter CMC Ammonia Toxicity	5.62	mg/L	1999 EPA Document and State Rules for Trout Stream
Instream Winter CCC Ammonia Toxicity	2.07	mg/L	1999 EPA Document and State Rules for Early Life Stages
Instream Summer CMC Ammonia Toxicity	2.72	mg/L	Comparison of Trout Stream vs. 2.5 Multiplier
Instream Summer CCC Ammonia Toxicity	1.09	mg/L	1999 EPA Document and State Rules for Early Life Stages
Instream Winter CMC Ammonia Toxicity	5.18	mg/L	Comparison of Trout Stream vs. 2.5 Multiplier
Instream Winter CCC Ammonia Toxicity	2.07	mg/L	1999 EPA Document and State Rules for Early Life Stages
Instream Summer CMC Ammonia Toxicity	397	lb/day	Conversion to pounds using 1Q10
Instream Summer CCC Ammonia Toxicity	159	lb/day	Conversion to pounds using 1Q10
Instream Winter CMC Ammonia Toxicity	757	lb/day	Conversion to pounds using 1Q10
Instream Winter CCC Ammonia Toxicity	303	lb/day	Conversion to pounds using 1Q10
5% De Minimus Instream Summer CMC Ammonia Toxicity	20	lb/day	
5% De Minimus Instream Summer CCC Ammonia Toxicity	8	lb/day	
5% De Minimus Instream Winter CMC Ammonia Toxicity	38	lb/day	
5% De Minimus Instream Winter CCC Ammonia Toxicity	15	lb/day	
Effluent			
Current Flow Rate	0.150	MGD	
Added Flow Rate	0.025	MGD	
Current NH4 as N Concentration	1.5	mg/L	Previous Permit Application
Summer CMC Concentration of Effluent From Air Stripper	86.2	mg/L	
Summer CCC Concentration of Effluent From Air Stripper	29.1	mg/L	
Winter CMC Concentration of Effluent From Air Stripper	172.5	mg/L	
Winter CCC Concentration of Effluent From Air Stripper	63.6	mg/L	
Summer CMC Concentration of Total Effluent	13.6	mg/L	
Summer CCC Concentration of Total Effluent	5.4	mg/L	
Winter CMC Concentration of Total Effluent	25.9	mg/L	
Winter CCC Concentration of Total Effluent	10.4	mg/L	

New Process Fluoride De Minimus Calculations			Reference
Receiving Stream			
Receiving Stream	Caney Fork River @ mile 8.6	Units	
1Q10	17.5	MGD	USGS Low Flow pg. 18
3Q05	129.3	MGD	USGS Low Flow pg. 18
Primary Drinking Water Standard	4	mg/L	Water Supply Regulations
Allowable Stream Loading	4313	lb/day	
5% De Minimus Instream Summer CMC Ammonia Toxicity	216	lb/day	
Current Flow Rate	0.140	MGD	
Added Flow Rate	0.025	MGD	
Current Fluoride Concentration	0.6	mg/L	Previous Permit Application
Effluent From System	1031.0	mg/L	

Application Sampling and Permittee Requests

The receiving stream is classified for domestic water supply and recreation; therefore pollutants that were detected in the application were compared to applicable state water quality standards in Appendix 5a. Based on these calculations, no new parameters were added to the permit.

VIII. BIOMONITORING REQUIREMENTS, ACUTE

The discharge of industrial wastewater from Outfall 001 may contain several different pollutants, the combined effect of which has a reasonable potential to be detrimental to fish and aquatic life. The Tennessee Water Quality Standards criteria stipulates that "*The waters shall not contain toxic substances, whether alone or in combination with other substances, which will produce toxic conditions...*".

Since the permittee discharges to a stream with low critical flow conditions, there is a concern for toxicity effects of the discharge on the receiving stream, which is relatively unknown. Biomonitoring will provide information relative to the toxicity of the discharge. Calculation of toxicity limits is as follows:

$$DF = \frac{Q_s + Q_w}{Q_w} = \text{Dilution Factor}$$

where **Q_w** is a wastewater flow (Q_w = 0.134 MGD) and **Q_s** is a receiving stream low flow (1Q10 estimated at 17.5 MGD). Therefore,

$$DF = \frac{17.5 + 0.134}{0.134} = 132$$

Since the calculated dilution factor is less than 500:1, and assuming immediate and complete mixing, protection of the stream from acute effects requires:

Protection of aquatic life from acute effects requires:

$$LC_{50} \text{ of the wastewater must be } \geq \frac{100\%}{DF \times 0.3} = \text{Lethal concentration}$$

$$LC_{50} \text{ of the wastewater must be } \geq \frac{100\%}{132 \times 0.3} = 2.5$$

The toxicity tests specified herein shall be conducted once, within 180 days of effective date of this permit. If the effluent does not exhibit any toxicity during the first test, WET testing will not be required during the term of this permit. If the WET testing does show toxicity of the effluent, toxicity tests specified herein shall be conducted annually from thereon for the duration of the permit.

IX. ANTIDegradation

Tennessee's Antidegradation Statement is found in the Rules of the Tennessee Department of Environment and Conservation, Chapter 1200-4-3-.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#TN05130108001_1000.

The division has made a determination of the receiving waters associated with the subject discharge(s) and has found the receiving stream to be available conditions waters. Available conditions exist where water quality is better than the applicable criterion for a specific parameter. The applicant has demonstrated to the department that reasonable alternatives to new or increased degradation to the available conditions waters are not feasible.

The department has maintained, and shall continue to assess, the water quality of the stream to assure that the water quality is adequate to protect the existing uses of the stream fully, and to assure that there shall be achieved the highest statutory and regulatory requirements for all new and existing point sources and all cost-effective and reasonable best management practices for nonpoint source control.

X. PERMIT DURATION

The proposed limitations meet the requirements of Section 301(b)(2)(A), (C), (D), (E), and (F) of the Clean Water Act as amended. It is the intent of the division to organize the future issuance and expiration of this particular permit such that other permits located in the same watershed and group within the State of Tennessee will be set for issuance and expiration at the same time. In order to meet the target reissuance date for the Caney Fork watershed and following the directives for the Watershed Management Program initiated in January, 1996, the permit will be issued to expire in 2017.

APPENDIX 1

FACILITY DISCHARGES AND RECEIVING WATERS

FACILITY DISCHARGES AND RECEIVING WATERS				
OUTFALL 001				
LONGITUDE	LATITUDE			
85-56-31	36-12-18			
FLOW (MGD)	DISCHARGE SOURCE			
0.134	Aluminum Casting, Truck Shop, Cooling/ Dross			
	Cooler, Anodizing, Paintline Pretreatment and			
	Aluminum Extrusions			
0.1340	TOTAL DISCHARGE			
		RECEIVING STREAM DISCHARGE ROUTE		
		Caney Fork River at mile 8.6		
		STREAM LOW FLOW (CFS) *	7Q10	1Q10
			NA	27.0
		(MGD)	NA	17.5
			129.3	
STREAM USE CLASSIFICATIONS (WATER QUALITY)				
AQUATIC LIFE	RECREATION	IRRIGATION	LIVESTOCK & WILDLIFE	DOMESTIC WATER
X	X	X	X	X
INDUSTRIAL	NAVIGATION	TROUT STREAM		
X	X	X		

Treatment: Sedimentation, flocculation, floatation, neutralization, coagulation, pressure filtration, evaporation, landfill, and reduction.

* Reference: 2012 Updated Flow Description from Corp of Engineers plus Flow Duration and Low Flows of Tennessee Streams through 1992 by George S. Law and Jess D. Weaver. Water Resources Investigations Report 95-4293 prepared by the U.S. Geological Survey in Cooperation with the Tennessee Department of Environment and Conservation and the Tennessee Valley Authority. Nashville, Tennessee, 1996, p. 18.

WORK SHEET

OIL AND GREASE

CFR 467.32 subpart (c)

OPERATION	PRODUCT PRODUCED (MM lbs/day)	BPT/BAT (lbs/MM lbs)		PERMIT LIMIT lbs/day	
		monthly avg.	daily max.	monthly avg.	daily max.
		<i>DIRECT CHILL CAST</i>	0.430	15.95	26.58
<i>CORE</i>	0.270	4.39	7.32	1.19	1.98
<i>PRESS HEAT TREAT</i>	0.270	92.46	154.10	24.96	41.61
ANODIZING	0.097				
<i>Cleaner Bath 1</i>	0.097	2.15	3.58	0.21	0.35
<i>Cleaner Rinse 1</i>	0.097	166.95	278.24	16.19	26.99
<i>Acid Etch Bath 1</i>	0.097	2.15	3.58	0.21	0.35
<i>Acid Etch Rinse</i>	0.097	166.95	278.24	16.19	26.99
<i>Etch Bath 2</i>	0.097	2.15	3.58	0.21	0.35
<i>Wam Water Rinse</i>	0.097	166.95	278.24	16.19	26.99
<i>Final Etch Rinse</i>	0.097	166.95	278.24	16.19	26.99
<i>Desmut Bath</i>	0.097	2.15	3.58	0.21	0.35
<i>Desmut Rinse</i>	0.097	166.95	278.24	16.19	26.99
<i>Spray Rinse</i>	0.097	166.95	278.24	16.19	26.99
<i>Anodize Bath 1</i>	0.034	2.15	3.58	0.07	0.12
<i>Anodize Bath 2</i>	0.033	2.15	3.58	0.07	0.12
<i>Anodize Bath 3</i>	0.033	2.15	3.58	0.07	0.12
<i>Rinse Bath</i>	0.097	2.15	3.58	0.21	0.35
<i>Spray Rinse</i>	0.097	166.95	278.24	16.19	26.99
<i>Rinse Bath</i>	0.033	2.15	3.58	0.07	0.12
<i>Two Step Color Bath</i>	0.033	2.15	3.58	0.07	0.12
<i>Rinse Bath</i>	0.033	2.15	3.58	0.07	0.12
<i>Rinse Bath</i>	0.097	2.15	3.58	0.21	0.35
<i>Rinse Bath</i>	0.097	2.15	3.58	0.2086	0.3473
<i>Rinse Bath</i>	0.097	2.15	3.58	0.21	0.35
<i>Seal Bath 2 (cold)</i>	0.092	2.15	3.58	0.20	0.33
<i>Final Rinse Bath</i>	0.097	2.15	3.58	0.21	0.35
<i>Seal Bath 1 (hot)</i>	0.005	2.15	3.58	0.01	0.02
<i>Etch Scrubbers</i>	0.097	190.80	318.00	18.51	30.85
<i>Anodize Scrubbers</i>	0.097	190.80	318.00	18.51	30.85
PAINTLINE					
<i>Acid Cleaner Spray</i>	0.090	166.95	378.24	15.03	34.04
<i>Acid Rinse Spray</i>	0.090	166.95	378.24	15.03	34.04
<i>Acid Treat Spray</i>	0.090	166.95	378.24	15.03	34.04
<i>Acid Spray Rinse 1</i>	0.090	166.95	278.24	15.03	25.04
<i>Acid Spray Rinse 2</i>	0.090	166.95	278.24	15.03	25.04
TOTAL				254	451

WORK SHEET

ALUMINUM

CFR 467.32 subpart (c)

OPERATION	PRODUCT PRODUCED (MM lbs/day)	BPT/BAT (lbs/MM lbs)		PERMIT LIMIT lbs/day	
		monthly avg.	daily max.	monthly avg.	daily max.
		<i>DIRECT CHILL CAST</i>	0.430	4.26	8.55
<i>CORE</i>	0.270	1.09	2.19	0.29	0.59
<i>PRESS HEAT TREAT</i>	0.270	6.52	13.10	1.76	3.54
ANODIZING					
<i>Cleaner Bath 1</i>	0.097	0.58	1.15	0.06	0.11
<i>Cleaner Rinse 1</i>	0.097	13.00	25.00	1.26	2.43
<i>Acid Etch Bath 1</i>	0.097	0.58	1.15	0.06	0.11
<i>Acid Etch Rinse</i>	0.097	13.00	25.00	1.26	2.43
<i>Etch Bath 2</i>	0.097	0.58	1.15	0.06	0.11
<i>Warm Water Rinse</i>	0.097	13.00	25.00	1.26	2.43
<i>Final Etch Rinse</i>	0.097	13.00	25.00	1.26	2.43
<i>Desmut Bath</i>	0.097	0.58	1.15	0.06	0.11
<i>Desmut Rinse</i>	0.097	13.00	25.00	1.26	2.43
<i>Spray Rinse</i>	0.097	13.00	25.00	1.26	2.43
<i>Anodize Bath 1</i>	0.034	0.58	1.15	0.02	0.04
<i>Anodize Bath 2</i>	0.033	0.58	1.15	0.02	0.04
<i>Anodize Bath 3</i>	0.033	0.58	1.15	0.02	0.04
<i>Rinse Bath</i>	0.097	0.58	1.15	0.06	0.11
<i>Spray Rinse</i>	0.097	13.00	25.00	1.26	2.43
<i>Rinse Bath</i>	0.033	0.58	1.15	0.02	0.04
<i>Two Step Color Bath</i>	0.033	0.58	1.15	0.02	0.04
<i>Rinse Bath</i>	0.033	0.58	1.15	0.02	0.04
<i>Rinse Bath</i>	0.097	0.58	1.15	0.06	0.11
<i>Rinse Bath</i>	0.097	0.58	1.15	0.0563	0.1116
<i>Rinse Bath</i>	0.097	0.58	1.15	0.06	0.11
<i>Seal Bath 2 (cold)</i>	0.092	0.58	1.15	0.05	0.11
<i>Final Rinse Bath</i>	0.097	13.00	25.00	1.26	2.43
<i>Seal Bath 1 (hot)</i>	0.005	0.58	1.15	0.00	0.01
<i>Etch Scrubbers</i>	0.097	6.19	12.43	0.60	1.21
<i>Anodize Scrubbers</i>	0.097	6.19	12.43	0.60	1.21
PAINTLINE					
<i>Acid Cleaner Spray</i>	0.090	13.00	25.00	1.17	2.25
<i>Acid Rinse Spray</i>	0.090	13.00	25.00	1.17	2.25
<i>Acid Treat Spray</i>	0.090	13.00	25.00	1.17	2.25
<i>Acid Spray Rinse 1</i>	0.090	13.00	25.00	1.17	2.25
<i>Acid Spray Rinse 2</i>	0.090	13.00	25.00	1.17	2.25
TOTAL				19.8	38.4

WORK SHEET

CHROMIUM

CFR 467.32 subpart (c)

OPERATION	PRODUCT PRODUCED (MM lbs/day)	BPT/BAT (lbs/MM lbs)		PERMIT LIMIT lbs/day	
		monthly avg.	daily max.	monthly avg.	daily max.
<i>DIRECT CHILL CAST</i>	0.430	0.240	0.590	0.10	0.25
<i>CORE</i>	0.270	0.061	0.150	0.02	0.04
<i>PRESS HEAT TREAT</i>	0.270	0.370	0.900	0.10	0.24
ANODIZING	0.097				
<i>Cleaner Bath 1</i>	0.097	0.032	0.079	0.00	0.01
<i>Cleaner Rinse 1</i>	0.097	0.700	1.700	0.07	0.16
<i>Acid Etch Bath 1</i>	0.097	0.032	0.079	0.00	0.01
<i>Acid Etch Rinse</i>	0.097	0.700	1.700	0.07	0.16
<i>Etch Bath 2</i>	0.097	0.032	0.079	0.00	0.01
<i>Wam Water Rinse</i>	0.097	0.700	1.700	0.07	0.16
<i>Final Etch Rinse</i>	0.097	0.700	1.700	0.07	0.16
<i>Desmut Bath</i>	0.097	0.032	0.079	0.00	0.01
<i>Desmut Rinse</i>	0.097	0.700	1.700	0.07	0.16
<i>Spray Rinse</i>	0.097	0.700	1.700	0.07	0.16
<i>Anodize Bath 1</i>	0.034	0.032	0.079	0.00	0.00
<i>Anodize Bath 2</i>	0.033	0.032	0.079	0.00	0.00
<i>Anodize Bath 3</i>	0.033	0.032	0.079	0.00	0.00
<i>Rinse Bath</i>	0.097	0.032	0.079	0.00	0.01
<i>Spray Rinse</i>	0.097	0.700	1.700	0.07	0.16
<i>Rinse Bath</i>	0.033	0.032	0.079	0.00	0.00
<i>Two Step Color Bath</i>	0.033	0.032	0.079	0.00	0.00
<i>Rinse Bath</i>	0.033	0.032	0.079	0.00	0.00
<i>Rinse Bath</i>	0.097	0.032	0.079	0.00	0.01
<i>Rinse Bath</i>	0.097	0.032	0.079	0.0031	0.0077
<i>Rinse Bath</i>	0.097	0.032	0.079	0.00	0.01
<i>Seal Bath 2 (cold)</i>	0.092	0.032	0.079	0.00	0.01
<i>Final Rinse Bath</i>	0.097	0.032	0.079	0.00	0.01
<i>Seal Bath 1 (hot)</i>	0.005	0.032	0.079	0.00	0.00
<i>Etch Scrubbers</i>	0.097	0.350	0.850	0.03	0.08
<i>Anodize Scrubbers</i>	0.097	0.350	0.850	0.03	0.08
PAINTLINE					
<i>Acid Cleaner Spray</i>	0.090	0.700	1.700	0.06	0.15
<i>Acid Rinse Spray</i>	0.090	0.700	1.700	0.06	0.15
<i>Acid Treat Spray</i>	0.090	0.700	1.700	0.06	0.15
<i>Acid Spray Rinse 1</i>	0.090	0.700	1.700	0.06	0.15
<i>Acid Spray Rinse 2</i>	0.090	0.700	1.700	0.06	0.15
TOTAL				1.01	2.46

WORK SHEET

ZINC

CFR 467.32 subpart (c)

OPERATION	PRODUCT PRODUCED (MM lbs/day)	BPT/BAT (lbs/MM lbs)		PERMIT LIMIT lbs/day	
		monthly avg.	daily max.	monthly avg.	daily max.
		<i>DIRECT CHILL CAST</i>	0.430	0.810	1.940
<i>CORE</i>	0.270	0.210	0.490	0.06	0.13
<i>PRESS HEAT TREAT</i>	0.270	1.250	2.980	0.34	0.80
ANODIZING					
<i>Cleaner Bath 1</i>	0.097	0.109	0.262	0.01	0.03
<i>Cleaner Rinse 1</i>	0.097	2.400	5.700	0.23	0.55
<i>Acid Etch Bath 1</i>	0.097	0.109	0.262	0.01	0.03
<i>Acid Etch Rinse</i>	0.097	2.400	5.700	0.23	0.55
<i>Etch Bath 2</i>	0.097	0.109	0.262	0.01	0.03
<i>Warm Water Rinse</i>	0.097	2.400	5.700	0.23	0.55
<i>Final Etch Rinse</i>	0.097	2.400	5.700	0.23	0.55
<i>Desmut Bath</i>	0.097	0.109	0.262	0.01	0.03
<i>Desmut Rinse</i>	0.097	2.400	5.700	0.23	0.55
<i>Spray Rinse</i>	0.097	2.400	5.700	0.23	0.55
<i>Anodize Bath 1</i>	0.034	0.109	0.262	0.00	0.01
<i>Anodize Bath 2</i>	0.033	0.109	0.262	0.00	0.01
<i>Anodize Bath 3</i>	0.033	0.109	0.262	0.00	0.01
<i>Rinse Bath</i>	0.097	0.109	0.262	0.01	0.03
<i>Spray Rinse</i>	0.097	2.400	5.700	0.23	0.55
<i>Rinse Bath</i>	0.033	0.109	0.262	0.00	0.01
<i>Two Step Color Bath</i>	0.033	0.109	0.262	0.00	0.01
<i>Rinse Bath</i>	0.033	0.109	0.262	0.00	0.01
<i>Rinse Bath</i>	0.097	0.109	0.262	0.01	0.03
<i>Rinse Bath</i>	0.097	0.109	0.262	0.01	0.03
<i>Rinse Bath</i>	0.097	0.109	0.262	0.01	0.03
<i>Seal Bath 2 (cold)</i>	0.092	0.109	0.262	0.01	0.02
<i>Final Rinse Bath</i>	0.097	0.109	0.262	0.01	0.03
<i>Seal Bath 1 (hot)</i>	0.005	0.109	0.262	0.00	0.00
<i>Etch Scrubbers</i>	0.097	1.180	2.820	0.11	0.27
<i>Anodize Scrubbers</i>	0.097	1.180	2.820	0.11	0.27
PAINTLINE					
<i>Acid Cleaner Spray</i>	0.090	2.400	5.700	0.22	0.51
<i>Acid Rinse Spray</i>	0.090	2.400	5.700	0.22	0.51
<i>Acid Treat Spray</i>	0.090	2.400	5.700	0.22	0.51
<i>Acid Spray Rinse 1</i>	0.090	2.400	5.700	0.22	0.51
<i>Acid Spray Rinse 2</i>	0.090	2.400	5.700	0.22	0.51
TOTAL				3.46	8.23

APPENDIX 2A

METALS AND TOXICS CONSIDERATIONS

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

FACILITY: Bon L Manufacturing Company
 PERMIT #: TN0002593

Stream (1018)	Stream (3025)	Waste Flow	Tot. Susp. Solids	Hardness (as CaCO3)	Stream Allocation
(MGD)	(MGD)	(MGD)	(mg/l)	(mg/l)	(%)
17.500	129.300	0.134	10	98	50

EFFLUENT CHARACTERISTIC	Fish/Aquatic Life Water Quality Criteria			Effluent Fraction Dissolved	Fish & Aquatic Life Water Quality Criteria (1010)				Human Health Water Quality Criteria (1005)						
	Chronic		Acute		In-Stream Allowable		Calc. Effluent Concentration		In-Stream Criteria		Calc. Effluent Concentration		DWS		
	(µg/l)	(µg/l)	(µg/l)		(Fraction)	(µg/l)	(µg/l)	(µg/l)	(µg/l)	Organisms	Water/Organisms	DWS	Organisms	Water/Organisms	DWS
Cadmium *	0.900	0.243	1.975	0.193	1.258	10.243	24.0	615.2	NA	NA	5.0	NA	NA	1980.6	<0.5
Copper *	1.300	8.802	13.186	0.218	40.385	60.495	2572.4	3895.6	NA	NA	NA	NA	NA	NA	<5
Lead *	0.900	2.462	63.176	0.146	16.870	432.903	1051.2	28426.6	NA	NA	5.0	NA	NA	1980.6	<1.5
Nickel *	7.000	51.125	460.301	0.206	248.471	2237.083	15891.9	146739.6	4600.0	610.0	100.0	2218251.1	291230.0	44919.0	<5
Silver *	1.553	NA	3.107	1.000	NA	3.107	NA	103.0	NA	NA	NA	NA	NA	NA	<10
Zinc *	3.300	116.134	115.192	0.125	928.788	921.252	60897.4	60401.5	NA	NA	NA	NA	NA	NA	30
Mercury (T) **	0.025	0.770	1.400	1.000	0.770	1.400	49.03	90.5	0.051	0.05	2.0	12.6	12.1	963.9	<0.2
Chromium III	1.200	72.698	560.414	0.078	929.891	7148.640	61107.1	470291.5	NA	NA	100.0	NA	NA	47717.3	10
Chromium VI	1.200	11.000	16.000	1.000	11.000	16.000	645.4	974.4	NA	NA	100.0	NA	NA	47717.3	10
Cyanide (T) ***	2.600	5.200	22.000	1.000	5.200	22.000	172.4	1277.8	140.0	140.0	200.0	66360.4	66360.4	96338.1	<10
Toluene	0.000	NA	NA	1.000	NA	NA	NA	NA	15000.0	1300.0	1000.0	7244440.3	627851.5	482982.7	<1
Benzene	0.000	NA	NA	1.000	NA	NA	NA	NA	510.0	22.0	5.0	245311.0	10625.2	2414.8	<1
1,1,1 Trichloroethane	0.000	NA	NA	1.000	NA	NA	NA	NA	NA	NA	200.0	NA	NA	96692.5	<1
Ethylbenzene	0.000	NA	NA	1.000	NA	NA	NA	NA	2100.0	530.0	700.0	1014221.6	255970.2	338673.9	<1
Carbon Tetrachloride	0.000	NA	NA	1.000	NA	NA	NA	NA	16.0	2.3	5.0	7727.4	1110.8	2414.8	<1
Chloroform	0.000	NA	NA	1.000	NA	NA	NA	NA	4700.0	57.0	NA	2269924.6	27528.9	NA	2.5
Tetrachloroethylene	0.000	NA	NA	1.000	NA	NA	NA	NA	33.0	6.9	5.0	15937.8	3332.4	2414.8	<1
Trichloroethylene	0.000	NA	NA	1.000	NA	NA	NA	NA	300.0	25.0	5.0	144888.8	12074.1	2414.8	<1
1,2, trans Dichloroethylene	0.000	NA	NA	1.000	NA	NA	NA	NA	10000.0	140.0	100.0	4829826.9	67614.8	48296.3	<1
Methylene Chloride	0.000	NA	NA	1.000	NA	NA	NA	NA	5900.0	46.0	NA	2849479.9	22216.3	NA	<5
Total Phenols	0.000	NA	NA	1.000	NA	NA	NA	NA	1700000.0	21000.0	NA	NA	NA	NA	<9
Napthalene	0.000	NA	NA	1.000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<9
Total Phthalates	0.000	NA	NA	1.000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chlorine (T. Res.)	0.000	11.000	19.000	1.000	11.000	19.000	1447.6	2800.3	NA	NA	NA	NA	NA	NA	<1000
Fluoride	0.000	NA	NA	1.000	NA	NA	NA	NA	NA	NA	4000.0	NA	NA	1931850.7	7100
Nitrate-Nitrite	0.000	NA	NA	1.000	NA	NA	NA	NA	NA	NA	10.0	NA	NA	4829.6	<50
Alpha	0.000	NA	NA	1.000	NA	NA	NA	NA	NA	NA	15.0	NA	NA	7244.4	<3
Radium	0.000	NA	NA	1.000	NA	NA	NA	NA	NA	NA	5.0	NA	NA	2414.8	<1
Barium	0.000	NA	NA	1.000	NA	NA	NA	NA	NA	NA	2.0	NA	NA	965.9	<5
2,3,7,8 Tetrachloro-dibenzo-P-Dioxin	0.000	NA	NA	1.000	NA	NA	NA	NA	NA	NA	0.00003	NA	NA	0.01449	0.000018
2,4 Dichloro-phenol	0.000	NA	NA	1.000	NA	NA	NA	NA	290.0	77	NA	140059.2	37188.1	NA	<9
3,4 Benzofluoranthene	0.000	NA	NA	1.000	NA	NA	NA	NA	0.18	0.036	NA	86.9	18.4	NA	<9
Hexachlorobutadiene	0.000	NA	NA	1.000	NA	NA	NA	NA	180	4.4	NA	86933.3	2125.0	NA	<9
PCBs, Total	0.000	NA	NA	1.000	NA	NA	NA	NA	0.00064	0.00064	NA	0.3	0.3	NA	<2

* Denotes metals for which Fish & Aquatic Life Criteria are expressed as a function of total hardness. The Fish & Aquatic Life criteria for this metal are in the dissolved form at laboratory conditions. The in-stream allowable criteria and calculated effluent concentrations are in the total recoverable form.

** The criteria for these parameters are in the total form.

NOTE: Water Quality criteria for stream use classifications other than Fish & Aquatic Life are based on the 30Q5 flow.

**WATER QUALITY BASED EFFLUENT CALCULATIONS
 OUTFALL 001**

FACILITY: Bon L Manufacturing
 PERMIT: TN0002593
 DATE: 3/13/2012

Stream (1Q10)	Stream (10Q5)	Waste Flow	Tot. Susp. Solids	Hardness (as CaCO3)	Margin of Safety
[MGD]	[MGD]	[MGD]	[mg/l]	[mg/l]	[%]
17.5	129.3	0.134	10	98	50

PARAMETER	2			5		6		7		10			11		12		13		14		15
	Detection Levels			Fish/Aqua. Life Water Quality Criteria		Calculated Effluent Concentration		Human Health Water Quality Criteria (30Q5)			Calculated Effluent Concentration		Calculated Effluent Concentration		Calculated Effluent Concentration		Calculated Effluent Concentration				
	Stream Background Conc. [ug/l]	Scan MDL [ug/l]	WQC RDL *EPA MDL [ug/l]	Chronic [ug/l]	Acute [ug/l]	Chronic [ug/l]	Acute [ug/l]	Organisms [ug/l]	In-Stream Criteria Water/Org [ug/l]	DWS [ug/l]	Organisms [ug/l]	Water/Org [ug/l]	DWS [ug/l]	Organisms [ug/l]	Water/Org [ug/l]	DWS [ug/l]	Organisms [ug/l]	Water/Org [ug/l]	DWS [ug/l]		
ANTIMONY		3.0	3.0																		
ARSENIC	1.1	1.0	1.0	150.0	340.0	9797.9	27299.7	10.0	10.0	10.0	4298.9	4298.9	4298.9	4298.9	4298.9	4298.9	4298.9	4298.9	4298.9	<5	
BERYLLIUM		2.0	1.0																		<2.5
SELENIUM	1.7	5.0	2.0	5.0	30.0	218.0	1205.0														<2.5
THALLIUM		5.0	-					0.47	0.38	2.0	227.0	115.9	969.9								<1
ACROLEIN	0.0	50.0	1.0					290.0	190.0		140059.2	81762.9									<20
ACRYLONITRILE	0.0	50.0	1.0					2.5	0.51		1207.4	246.3									<20
BENZENE	0.0	1.0	1.0					510.0	22.0	5.0	246311.0	10625.2	2414.8								<1
BROMOFORM	0.0	1.0	1.0					1400.0	43.0		678147.8	20787.4	2414.8								<1
CARBON TETRACHLORIDE	0.0	1.0	1.0					16.0	2.3	5.0	7727.4	1110.8	2414.8								<1
CHLOROBENZENE	0.0	1.0	-					1600.0	150.0		772740.3	62785.1	62785.1								<1
CHLORODIBROMO-METHANE	0.0	1.0	-					130.0	4.0		62785.1	1031.9									<1
CHLOROETHANE	0.0	1.0	-																		<1
2-CHLORO-ETHYL VINYL ETHER	0.0	1.0	-																		<10
CHLOROFORM	0.0	5.0	0.5					4700.0	57.0		2269024.6	27528.9									2.5
DICHLOROBROMO-METHANE	0.0	1.0	1.0					170.0	5.5		82103.7	2696.3									<1
1,1-DICHLOROETHANE	0.0	1.0	1.0					NA	NA	NA	NA	NA	NA								<1
1,2-DICHLOROETHANE	0.0	1.0	1.0					376.0	3.8	5.0	178696.2	1835.3	2414.8								<1
TRANS 1,2-DICHLORO-ETHYLENE	0.0	1.0	-					10000	148.0	100.0	4829626.9	67614.8	48296.3								<1
1,1-DICHLOROETHYLENE	0.0	1.0	1.0																		<1
1,2-DICHLOROPROPANE	0.0	1.0	-					150.0	5.0	5.0	72444.4	2414.8	2414.8								<1
1,3-DICHLORO-PROPYLENE	0.0	1.0	1.0					210.0	3.4		101422.2	1642.1									<2
ETHYLBENZENE	0.0	1.0	1.0					2100	530.0	700.0	1014221.6	255970.2	330073.9								<1
METHYL BROMIDE	0.0	1.0	-					1500.0	47.0		724444.0	22699.2									<1
METHYL CHLORIDE	0.0	1.0	1.0																		<1
METHYLENE CHLORIDE	0.0	5.0	1.0					5900.0	46.0		2849479.0	22216.3									<5
1,1,2,2-TETRACHLORO-ETHANE	0.0	1.0	0.5					40.0	1.7		19318.5	821.0									<1
TETRACHLORO-ETHYLENE	0.0	1.0	0.5					33.0	6.9	5.0	15937.8	3332.4	2414.8								<1
TOLUENE	0.0	1.0	1.0					15000	1300.0	1000.0	7244440.3	627851.5	482962.7								<1
1,1,1-TRICHLOROETHANE	0.0	1.0	1.0							200.0											<1
1,1,2-TRICHLOROETHANE	0.0	1.0	0.2					160.0	5.9	5.0	77274.0	2849.5	2414.8								<1
TRICHLOROETHYLENE	0.0	1.0	1.0					300.0	25.0	5.0	144888.8	12074.1	2414.8								<1
VINYL CHLORIDE	0.0	1.0	2.0					24.0	0.25	2.0	11594.1	120.7	969.9								<1
P-CHLORO-M-CRESOL	0.0	10.0	-																		<9
2-CHLOROPHENOL	0.0	10.0	-					150.0	81.0		72444.4	39120.0									<9
2,4-DICHLOROPHENOL	0.0	10.0	-					290.0	77.0		140059.2	37188.1									<9
2,4-DIMETHYLPHENOL	0.0	10.0	-					850.0	380.0		410516.3	183525.8									<9
4,6-DINITRO-O-CRESOL	0.0	10.0	24.0					280.0	13.0		135229.6	6278.5									<45
2,4-DINITROPHENOL	0.0	10.0	42.0					5300.0	69.0		2559702.2	33324.4									<45
2-NITROPHENOL	0.0	10.0	-																		<9
4-NITROPHENOL	0.0	10.0	-																		<9
PENTACHLOROPHENOL	0.0	10.0	5.0	15	19	887.0	1250.2	30.0	2.7	1.0	14488.9	1304.0	483.0								<45
PHENOL	0.0	10.0	-					1700000	21000.0		82103667.2	10142216.4									<9
2,4,6-TRICHLOROPHENOL	0.0	10.0	2.7					24.0	14.0		11594.1	6761.5									<9
ACENAPHTHENE	0.0	10.0	-					990.0	670.0		478333.1	325985.0									<9
ACENAPHTHYLENE	0.0	10.0	2.3																		<9
ANTHRACENE	0.0	10.0	0.7					40000	8300.0		19318507.5	4008596.3									<9

a. Columns 7-8, and 12-14 are the effluent concentrations allowable to prevent exceedence of water quality criteria.
 b. Potential to exceed criteria exists if the measured quantity in column 15 exceeds, or could exceed, the calculated allowable concentrations in columns 7-8, and 12-14.
 c. Additional testing is required if the detection level used in the scan is higher than the state RDL, and/or the MDL, of the approved EPA scan method and industry is known to have that pollutant.
 d. All background concentrations for these volatile organic, acid-extractable, and base-neutral compounds are assumed zero in the absence of supporting monitoring data.
 e. Other metals for which data were provided on the application are evaluated on the Metals & Toxics spreadsheet.

WATER QUALITY BASED EFFLUENT CALCULATIONS
OUTFALL 001
FACILITY: Bon L Manufacturing
PERMIT: TN0002593
DATE: 3/13/2012

Stream (1Q10) [MGD]	Stream (3Q05) [MGD]	Waste Flow [MGD]	TSS Susp Solids [mg/l]	Hardness (as CaCO3) [mg/l]	Margin of Safety [%]
17.5	129.3	0.134	10	98	50

PARAMETER	1	2		3	4		5		6		7		8		9		10		11		12		13		14		15	
	Stream Bkgnd Conc [ug/l]	Delection Levels Scan		WQC RDL *EPA MDL [ug/l]	Fish/Aqua. Life Water Quality Criteria		Calculated Effluent Concentration		Human Health Water Quality Criteria (3Q05)		Calculated Effluent Concentration		In-Stream Criteria		DWS		Organisms		Water/Org		DWS		Organisms		Water/Org		Avg. daily effluent [ug/l]	
		MDL [ug/l]	MDL [ug/l]		Chronic [ug/l]	Acute [ug/l]	Chronic [ug/l]	Acute [ug/l]	Organisms [ug/l]	Water/Org [ug/l]	DWS [ug/l]	Organisms [ug/l]	Water/Org [ug/l]	DWS [ug/l]	Organisms [ug/l]	Water/Org [ug/l]	DWS [ug/l]	Organisms [ug/l]	Water/Org [ug/l]									
BENZIDINE	0.0	50.0	-																									
BENZO(A)ANTHRACENE	0.0	10.0	0.3																									<72
BENZO(A)PYRENE	0.0	10.0	0.3																									<9
3,4-BENZO-FLUORANTHENE	0.0	10.0	0.3																									<9
BENZOGHIAPERYLENE	0.0	10.0	-																									<9
BENZOF(FLUORANTHENE	0.0	10.0	0.3																									<9
BIS (2-CHLOROETHOXY) METHANE	0.0	10.0	-																									<9
BIS (2-CHLOROETHYL) ETHER	0.0	10.0	1.0																									<9
BIS (2-CHLOROISO-PROPYL) ETHER	0.0	10.0	-																									<9
BIS (2-ETHYLHEXYL) PHTHALATE	0.0	10.0	2.5																									<9
4-BROMOPHENYL PHENYL ETHER	0.0	10.0	-																									<9
BUTYL BENZYL PHTHALATE	0.0	10.0	-																									<9
2-CHLORONAPHTHALENE	0.0	10.0	-																									<9
2-CHLOROPHENYL PHENYL ETHER	0.0	10.0	-																									<9
CHRYSENE	0.0	10.0	2.5																									<9
DI-N-BUTYL PHTHALATE	0.0	10.0	2.5																									<9
DI-N-OCTYL PHTHALATE	0.0	10.0	-																									<9
DBENZO(A,H) ANTHRACENE	0.0	10.0	-																									<9
1,2-DICHLOROBENZENE	0.0	1.0	2.0																									<9
1,3-DICHLOROBENZENE	0.0	5.0	2.0																									<9
1,4-DICHLOROBENZENE	0.0	5.0	2.0																									<9
1,3-DICHLOROBENZIDINE	0.0	10.0	-																									<54
DIETHYL PHTHALATE	0.0	10.0	1.9																									<9
DMETHYL PHTHALATE	0.0	10.0	1.6																									<9
2,4-DINITROTOLUENE	0.0	10.0	1.0																									<9
2,6-DINITROTOLUENE	0.0	10.0	-																									<9
1,2-DIPHENYLHYDRAZINE	0.0	10.0	-																									<9
FLUORANTHENE	0.0	10.0	2.2																									<9
FLUORENE	0.0	10.0	0.3																									<9
HEXACHLOROBENZENE	0.0	10.0	1.9																									<9
HEXACHLOROBUTADIENE	0.0	10.0	5.0																									<9
HEXACHLOROCCYCLO-PENTADIENE	0.0	10.0	-																									<9
HEXACHLOROETHANE	0.0	10.0	0.5																									<9
INDENO(1,2,3-CD)PYRENE	0.0	10.0	-																									<9
ISOPHORONE	0.0	10.0	-																									<9
NAPHTHALENE	0.0	10.0	-																									<9
NITROBENZENE	0.0	10.0	10.0																									<9
N-NITROSODI-N-PROPYLAMINE	0.0	10.0	-																									<9
N-NITROSODI-METHYLAMINE	0.0	10.0	-																									<9
N-NITROSODI-PHENYLAMINE	0.0	10.0	-																									<9
PHENANTHRENE	0.0	10.0	0.7																									<9
PYRENE	0.0	10.0	0.3																									<9
1,2,4-TRICHLOROBENZENE	0.0	-	-																									<9

a. Columns 7-8, and 12-14 are the effluent concentrations allowable to prevent exceedence of water quality criteria.
 b. Potential to exceed critena exists if the measured quantity in column 15 exceeds, or could exceed, the calculated allowable concentrations in columns 7-8, and 12-14.
 c. Additional testing is required if the detection level used in the scan is higher than the state RDL and/or the MDL of the approved EPA scan method and industry is known to have that pollutant.
 d. All background concentrations for these volatile organic, acid-extractable, and base-neutral compounds are assumed zero in the absence of supporting monitoring data.
 e. Other metals for which data were provided on the application are evaluated on the Metals & Toxics spreadsheet.

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 (17.5 MGD)
 - * Calcium hardness (98 mg/l)
 - * Total suspended solids (10 mg/l)
 - * Background metals concentrations
 - * Other dischargers impacting this segment (none)
 - * Downstream water supplies, if applicable
- b. The chronic water quality criteria are converted from total recoverable metal at lab conditions to dissolved lab conditions for the following metals: cadmium, copper, trivalent chromium, lead, nickel and zinc. Then translators are used to convert the dissolved lab conditions to total recoverable metal at ambient conditions.
- c. The acute water quality criteria are converted from total recoverable metal at lab conditions to dissolved lab conditions for the following metals: cadmium, copper, trivalent chromium, lead, nickel, zinc and silver. Then translators are used to convert the dissolved lab conditions to total recoverable metal at ambient conditions for the following metals: cadmium, copper, lead, nickel and silver.
- d. The resulting allowable trivalent and hexavalent chromium concentrations are compared with the effluent values characterized as total chromium on permit applications. If reported total chromium exceeds an allowable trivalent or hexavalent chromium value, then the calculated value will be applied in the permit for that form of chromium unless additional effluent characterization is received to demonstrate reasonable potential does not exist to violate the applicable state water quality criteria for chromium.
- e. A standard mass balance equation determines the total allowable concentration (permit limit) for each pollutant. This equation also includes a percent stream allocation of no more than 90%.

The following formulas are used to evaluate water quality protection:

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

where:

- C_m = resulting in-stream concentration after mixing
- C_w = concentration of pollutant in wastewater
- C_s = stream background concentration
- Q_w = wastewater flow
- Q_s = stream low flow

to protect water quality:

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

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

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

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

Fish and Aquatic Life Protection

7Q10 - Low flow under natural conditions

1Q10 - Regulated low flow conditions

Other than Fish and Aquatic Life Protection

30Q2 - Low flow under natural conditions

2. Fish & Aquatic Life water quality criteria for certain Metals are developed through application of hardness dependent equations. These criteria are combined with dissolved fraction methodologies in order to formulate the final effluent concentrations.
3. For criteria that are hardness dependent, chronic and acute concentrations are based on a Hardness of 25 mg/L and Total Suspended Solids (TSS) of 10 mg/L unless STORET or Water Supply intake data substantiate a different value. Minimum and maximum limits on the hardness value used for water quality calculations are 25 mg/L and 400 mg/L respectively. The minimum limit on the TSS value used for water quality calculations is 10 mg/L.
4. Background concentrations are determined from the division database, results of sampling obtained from the permittee, and/or obtained from nearby stream sampling data. If this background data is not sufficient, one-half of the chronic "In-stream Allowable" water quality criteria for fish and aquatic life is used. If the measured background concentration is greater than the chronic "In-stream Allowable" water quality criteria, then the measured background concentration is used in lieu of the chronic "In-stream Allowable" water quality criteria for the purpose of calculating the appropriate effluent limitation (C_w). Under these circumstances, and in the event the "stream allocation" is less than 100%, the calculated chronic effluent limitation for fish and aquatic life should be equal to the chronic "In-stream Allowable" water quality criteria. These guidelines should be strictly followed where the industrial source water is not the receiving stream. Where the industrial source water is the receiving stream, and the measured background concentration is greater than the chronic "In-stream Allowable" water quality criteria, consideration may be given as to the degree to which the permittee should be required to meet the requirements of the water quality criteria in view of the nature and characteristics of the receiving stream.

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

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

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

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

CCF = Chronic Conversion Factor

This equation and the appropriate coefficients for each metal are from Tennessee Rule 1200-4-3-.03 and the EPA guidance contained in *The Metals Translator: Guidance For Calculating A Total Recoverable Permit Limit From a Dissolved Criterion* (EPA 823-B-96-007, June 1996). Values for other metals are in the total form and are not hardness dependent; no chronic criterion exists for silver. Published criteria are used for non-metal parameters.

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

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

ACF = Acute Conversion Factor

This equation and the appropriate coefficients for each metal are from Tennessee Rule 1200-4-3-.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.

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

APPENDIX 3

PREVIOUS PERMIT LIMITS AND MONITORING REQUIREMENTS

PERMIT LIMITS						
OUTFALL 001						
EFFLUENT CHARACTERISTIC	EFFLUENT LIMITATIONS				MONITORING REQUIREMENTS	
	MONTHLY		DAILY		MSRMNT. FRQNCY.	SAMPLE TYPE
	AVG. CONC. (mg/l)	AVG. AMNT. (lb/day)	MAX. CONC. (mg/l)	MAX. AMNT. (lb/day)		
FLOW	Report (MGD) *		Report (MGD) *		Continuous	Instantaneous
pH **	Range 7.0 - 9.0				1/Week	Grab
TOTAL SUSPENDED SOLIDS (TSS)	50.0	409	70.0	861	1/Week	Grab
OIL & GREASE	15.0	252	30.0	447	1/Week	Grab
CYANIDE, TOTAL	–	0.35	–	1.82	1/Quarter	Grab
ALUMINIUM, TOTAL	–	20.94	–	40.58	1/Week	Composite
CHROMIUM, TOTAL	–	1.07	–	2.61	1/Month	Composite
FLOATING MATERIAL, COLOR FOAM & OIL SHEEN	–	–	Report	–	1/Week	Visual Observation
ZINC, TOTAL	–	3.67	–	8.72	1/Month	Composite
Ammonia as N (May 1 - Oct. 31)	5.0	–	10.0	–	1/Week	Composite
Ammonia as N (Nov. 1 - April 30)	10.0	–	20.0	–	1/Week	Composite
Fluoride	300.0	–	500.0	–	1/Week	Composite
48-HR LC50	Survival in 2.6% Effluent				Annually***	Grab ***

* Flow shall be reported in Million Gallons per Day (MGD).
 ** pH analyses shall be performed within fifteen (15) minutes of sample collection.
 *** See Part III for methodology and frequency.

Date	Total Cyanide		Total Aluminum		Total Chromium		Total Zinc		Whole Effluent Toxicity (WET) Testing	
	Monthly Average Amount	Daily Max. Amount	Monthly Average Amount	Daily Max. Amount	Monthly Average Amount	Daily Max. Amount	Monthly Average Amount	Daily Max. Amount	Ceriodaphnia	Pimephales
	lb/day	lb/day	lb/day	lb/day	lb/day	lb/day	lb/day	lb/day	%	%
7/30/2007	0.02	0.02	1.1	3.1	0.01	0.01	0.02	0.02	10.4	10.4
8/30/2007	0.02	0.02	0.9	1.2	0.01	0.01	0.02	0.02		
9/30/2007	0.02	0.02	1.2	2.3	0.01	0.01	0.03	0.03		
10/30/2007	0.03	0.03	1.9	3.5	0.02	0.02	0.03	0.03		
11/30/2007	0.03	0.03	1.4	1.9	0.01	0.01	0.03	0.03		
12/30/2007	0.02	0.02	1.4	1.7	0.01	0.01	0.02	0.02		
1/30/2008	0.01	0.01	0.8	1.3	0.01	0.01	0.02	0.02		
2/29/2008	0.03	0.03	1.0	1.3	0.06	0.06	0.03	0.03		
3/30/2008	0.02	0.02	0.8	1.1	0.01	0.01	0.02	0.02		
4/30/2008	0.01	0.01	0.7	1.2	0.01	0.01	0.03	0.03		
5/30/2008	0.02	0.02	0.7	1.8	0.01	0.01	0.02	0.02		
6/30/2008										
7/30/2008	0.01	0.01	1.5	2.6	0.01	0.01	0.01	0.01		
8/30/2008										
9/30/2008	0.01	0.01	1.8	2.7	0.01	0.01	0.01	0.01		
10/30/2008	0.02	0.02	1.5	1.9	0.01	0.01	0.11	0.11		
11/30/2008										
12/30/2008	0.02	0.02	1.3	2.7	0.01	0.01	0.02	0.02		
1/30/2009	0.02	0.02	1.4	2.0	0.01	0.01	0.02	0.02		
2/28/2009	0.01	0.01	1.7	2.1	0.01	0.01	0.02	0.02		
3/30/2009	0.01	0.01	0.8	1.1	0.01	0.01	0.02	0.02		
4/30/2009	0.01	0.01	1.5	2.5	0.01	0.01	0.02	0.02		
5/30/2009	0.02	0.02	1.5	2.7	0.02	0.02	0.03	0.03		
06/30/2009	0.01	0.01	3.6	9.2	0.01	0.01	0.02	0.02		
07/31/2009	0.01	0.01	4.1	5.3	0.01	0.01	0.04	0.04		
08/31/2009	0.01	0.01	3.8	8.9	0.01	0.01	0.03	0.03		
09/30/2009	0.02	0.02	2.2	3.6	0.01	0.01	0.02	0.02		
10/31/2009	0.01	0.01	2.8	4.3	0.01	0.01	0.02	0.02		
11/30/2009	0.01	0.01	5.0	9.2	0.01	0.01	0.02	0.02		
12/31/2009	0.01	0.01	2.7	4.3	0.03	0.03	0.08	0.08		
01/31/2010	0.01	0.01	1.5	2.5	0.01	0.01	0.08	0.08		
02/28/2010	0.01	0.01	4.4	7.2	0.01	0.01	0.02	0.02		
03/31/2010	0.01	0.01	2.3	3.1	0.01	0.01	0.02	0.02		
04/30/2010	0.01	0.01	3.0	4.4	0.01	0.01	0.02	0.02		
05/31/2010	0.02	0.02	4.1	6.1	0.02	0.02	0.04	0.04		
06/30/2010	0.01	0.01	5.4	6.8	0.01	0.01	0.02	0.02		
07/31/2010	0.01	0.01	5.1	7.6	0.01	0.01	0.02	0.02		
08/31/2010			4.0	5.4	0.01	0.01	0.02	0.02		
09/30/2010	0.01	0.01	2.4	3.0	0.01	0.01	0.01	0.01		
10/31/2010			3.1	3.4	0.01	0.01	0.02	0.02		
11/30/2010			2.5	3.4	0.01	0.01	0.02	0.02		
12/31/2010	0.01	0.01	2.2	2.2	0.01	0.01	0.02	0.02		
01/31/2011			2.2	3.0	0.01	0.01	0.06	0.06		
02/28/2011			1.9	2.2	0.01	0.01	0.03	0.03		
03/31/2011	0.01	0.01	2.3	3.5	0.01	0.01	0.02	0.02		
04/30/2011			2.8	3.4	0.01	0.01	0.02	0.02		
05/31/2011			2.9	4.6	0.003	0.003	0.01	0.01		
06/30/2011	0.01	0.01	3.2	4.4	0.01	0.01	0.02	0.02		
07/31/2011			3.1	3.6	0.01	0.01	0.01	0.01		
08/31/2011			3.1	4.0	0.01	0.01	0.02	0.02		
09/30/2011	0.01	0.01	4.1	6.4	0.01	0.01	0.05	0.05		
10/31/2011			3.9	5.8	0.01	0.01	0.02	0.02		
11/30/2011			3.9	5.5	0.01	0.01	0.02	0.02		
12/31/2011	0.01	0.01	3.0	3.7	0.01	0.01	0.02	0.02		
Standard Dev.	0.01	0.01	1.3	2.1	0.01	0.01	0.02	0.02		
Minimum	0.01	0.01	0.7	1.1	0.00	0.00	0.01	0.01	10.40	10.40
Maximum	0.03	0.03	5.4	9.2	0.06	0.06	0.11	0.11	10.4	10.4
Average	0.01	0.01	2.5	3.7	0.01	0.01	0.03	0.03	10	10
Permit Limit	0.35	1.82	20.9	40.6	1.07	2.61	3.67	8.72	2.6	2.6
Count	40	40	51	51	51	51	51	51	1	1

APPENDIX 5a

NEW PERMIT LIMITS AND MONITORING REQUIREMENTS

Comparison of Discharge Limitations

DETERMINATION OF DISCHARGE LIMITATIONS

Outfall 001

Eff. Flow Rate (MGD) 0.134 EFFLUENT CHARACTERISTIC	Monthly Average				
	Effluent Guidelines		Water Quality		New Permit
	[lb/day]		[lb/day]	[mg/l]	[lb/day]
Zinc (T)	3.46		68.1	60.9	3.46
Chromium (T)	1.01		53.3	47.7	1.01
Cyanide (T)	0.71		0.19	0.17	0.19
TSS	413		--	--	413
Oil and Grease	254		--	--	254
Aluminum	20		--	--	19.82

Eff. Flow Rate (MGD) 0.134 EFFLUENT CHARACTERISTIC	Daily Maximum				
	Effluent Guidelines		Water Quality		New Permit
	[lb/day]		[lb/day]	[mg/l]	[lb/day]
Zinc (T)	8.23		67.5	60.4	8.23
Chromium (T)	2.46		53.3	47.7	2.46
Cyanide (T)	1.71		1.4	1.3	1.43
TSS	868		--	--	868
Oil and Grease	451		--	--	451
Aluminum	38		--	--	38.42

APPENDIX 5b

New Permit Limits

PERMIT LIMITS						
OUTFALL 001						
EFFLUENT CHARACTERISTIC	EFFLUENT LIMITATIONS				MONITORING REQUIREMENTS	
	MONTHLY		DAILY		MSRMNT. FRQNCY.	SAMPLE TYPE
	AVG. CONC. (mg/l)	AVG. AMNT. (lb/day)	MAX. CONC. (mg/l)	MAX. AMNT. (lb/day)		
FLOW	Report (MGD) *		Report (MGD) *		Continuous	Instantaneous
pH **	Range 7.0 - 9.0				1/Week	Grab
TOTAL SUSPENDED SOLIDS (TSS)	50.0	413	70.0	868	1/Week	Grab
OIL & GREASE	15.0	254	30.0	451	1/Week	Grab
CYANIDE, TOTAL	—	0.19	—	1.43	1/Quarter	Grab
ALUMINIUM, TOTAL	—	19.82	—	38.42	1/Week	Composite
CHROMIUM, TOTAL	—	1.01	—	2.46	1/Month	Composite
ZINC, TOTAL	—	3.46	—	8.23	1/Month	Composite
Ammonia as N (May 1 - Oct. 31)	5.0	—	10.0	—	1/Week	Composite
Ammonia as N (Nov. 1 - April 30)	10.0	—	20.0	—	1/Week	Composite
Fluoride	300.0	—	500.0	—	1/Week	Composite
48-HR LC50	Survival in 2.5% Effluent				***	Grab ***

* Flow shall be reported in Million Gallons per Day (MGD).
 ** pH analyses shall be performed within fifteen (15) minutes of sample collection.
 *** See Part III for methodology and frequency.