20200121

VERSO®

Verso Corporation
Verso Escanaba LLC
7100 County Road 426
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Escanaba, MI 49829

Adam Becker
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August 4th, 2020

Ms. Sydney Bruestle
EGLE
Air Quality Division
1504 West Washington Street
Marquette, MI 49855

RE: Title V Renewable Operating Permit Renewal Application for Verso Escanaba LLC, SRN# A0884

Dear Ms. Bruestle,

Enclosed is the Title V Renewable Operating Permit (ROP) Renewal Application for Verso Escanaba LLC (Verso). Verso submitted the complete electronic version of the renewal application and a word version of the marked-up (red-lined) permit to you on August 4th, 2020. The original signed copy of the certification is in the first section of the submittal. Please note Mark Crockford is the new Mill Manager as called out in the Renewable Operating Permit M-001: Rule 215 Change Notification form submitted on 7/23/2020.

All information requested in the ROP Renewal Application Instructions are included such as Verso adding two flexible groups to the permit as a result of 40 CFR 63 Subpart DDDDD. These changes to the permit can be found in the Marked-Up (Red Line) Version of the Current ROP and/or the permit application package. The current permit application is due by August 26, 2020 therefore Verso requests an administratively complete confirmation and an Application Shield take effect prior to the ROP expiring February 26, 2021.

Please contact me with any questions or concerns.

Sincerely,

Ad Bel

Adam Becker
Environmental Engineer

Consulting
Engineers and
Scientists

Title V Renewable Operating Permit (ROP) Renewal Application for Verso Escanaba LLC

Escanaba Mill, Michigan

Submitted to:
Michigan Department of Environment, Great Lakes and Energy
Upper Peninsula District Office
Air Quality Division
1504 West Washington Street
Marquette, Michigan 49855

Submitted by:
Verso Escanaba LLC
7100 County Road 426
PO Box 757
Escanaba, Michigan 49829

Prepared by:
GEI Consultants, Inc.
3159 Voyager Drive
Green Bay, Wisconsin 54311
920.455.8200

July 2020

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ROP Renewal Application Form

EGLE

RENEWABLE OPERATING PERMIT
RENEWAL APPLICATION FORM

This information is required by Article II, Chapter 1, Part 55 (Air Pollution Control) of P.A. 451 of 1994, as amended, and the Federal Clean Air Act of 1990. Failure to obtain a permit required by Part 55 may result in penalties and/or imprisonment. Refer to instructions for additional information to complete the Renewable Operating Permit Renewal Application Form.

GENERAL INSTRUCTIONS

This application form should be submitted as part of an administratively complete application package for renewal of a Renewable Operating Permit (ROP). This application form consists of nine parts. Parts A – H must be completed for all applications and must also be completed for each section of a sectioned ROP. Answer all questions in all parts of the form unless directed otherwise. Detailed instructions for this application form can be found at http://michigan.gov/air (select the Permits Tab, "Renewable Operating Permits (ROP)/Title V", then "ROP Forms & Templates").

PART A: GENERAL INFORMATION

Enter information about the source, owner, contact person and the responsible official.

SOURCE INFORMATION

SRN	SIC Code	NAICS Code	Existing ROP Number	Section Number (if applicable)
A0884	2621	322121	MI-ROP-A0884-2016	1

Source Name
Verso Escanaba LLC and Omya, Incorporated

Street Address
7100 County Road 426

City	State	ZIP Code	County
Escanaba	MI	49829	Delta

Section/Town/Range (if address not available)

Source Description
Pulp and Paper Mill

☒ Check here if any of the above information is different than what appears in the existing ROP. Identify any changes on the marked-up copy of your existing ROP.

OWNER INFORMATION

Owner Name	Section Number (if applicable)
Verso Corporation	

Mailing address (☐ check if same as source address)
8540 Gander Creek Drive

City	State	ZIP Code	County	Country
Miamisburg	OH	45342	Montgomery	United States

☐ Check here if any information in this ROP renewal application is confidential. Confidential information should be identified on an Additional Information (AI-001) Form.

SRN: A0884	Section Number (if applicable):

PART A: GENERAL INFORMATION (continued)
At least one contact and responsible official must be identified. Additional contacts and responsible officials may be included if necessary.

CONTACT INFORMATION

Contact 1 Name William Racine			Title Environmental Manager	
Company Name & Mailing address (☒ check if same as source address)				
City	State	ZIP Code	County	Country
Phone number 906-233-2772		E-mail address william.racine@versoco.com		

Contact 2 Name (optional) Adam Becker			Title Environmental Engineer	
Company Name & Mailing address (☒ check if same as source address)				
City	State	ZIP Code	County	Country
Phone number 906-233-2929		E-mail address adam.becker@versoco.com		

RESPONSIBLE OFFICIAL INFORMATION

Responsible Official 1 Name Mark Crockford			Title Mill Manager	
Company Name & Mailing address (☒ check if same as source address)				
City	State	ZIP Code	County	Country
Phone number 906-233-2448		E-mail address mark.crockford@versoco.com		

Responsible Official 2 Name (optional) William Racine			Title Environmental Manager	
Company Name & Mailing address (☒ check if same as source address)				
City	State	ZIP Code	County	Country
Phone number 906-233-2772		E-mail address William.racine@versoco.com		

☐ Check here if an AI-001 Form is attached to provide more information for Part A. Enter AI-001 Form ID:

SRN: A0884	Section Number (if applicable):

PART B: APPLICATION SUBMITTAL and CERTIFICATION by Responsible Official
Identify the items that are included as part of your administratively complete application in the checklist below. For your application to be complete, it must include information necessary to evaluate the source and to determine all applicable requirements. Answer the compliance statements as they pertain to all the applicable requirements to which the source is subject. The source's Responsible Official must sign and date this form.

Listing of ROP Application Contents. Check the box for the items included with your application.	
☒ Completed ROP Renewal Application Form (and any AI-001 Forms) (required)	☐ Compliance Plan/Schedule of Compliance
☒ Mark-up copy of existing ROP using official version from the AQD website (required)	☐ Stack information
☒ Copies of all Permit(s) to Install (PTIs) that have not been incorporated into existing ROP (required)	☐ Acid Rain Permit Initial/Renewal Application
☐ Criteria Pollutant/Hazardous Air Pollutant (HAP) Potential to Emit Calculations	☐ Cross-State Air Pollution Rule (CSAPR) Information
☐ MAERS Forms (to report emissions not previously submitted)	☐ Confidential Information
☒ Copies of all Consent Order/Consent Judgments that have not been incorporated into existing ROP	☒ Paper copy of all documentation provided (required)
☒ Compliance Assurance Monitoring (CAM) Plan	☒ Electronic documents provided (optional)
☒ Other Plans (e.g., Malfunction Abatement, Fugitive Dust, Operation and Maintenance, etc.)	☒ Other, explain: Greenhouse Gas Monitoring Plan, Boiler MACT Site Specific Monitoring Plan, RICE MACT Plan, RMP

Compliance Statement	
This source is in compliance with **all** of its applicable requirements, including those contained in the existing ROP, Permits to Install that have not yet been incorporated into that ROP, and other applicable requirements not currently contained in the existing ROP.	☒ Yes ☐ No
This source will continue to be in compliance with all of its applicable requirements, including those contained in the existing ROP, Permits to Install that have not yet been incorporated into that ROP, and other applicable requirements not currently contained in the existing ROP.	☒ Yes ☐ No
This source will meet in a timely manner applicable requirements that become effective during the permit term.	☒ Yes ☐ No
The method(s) used to determine compliance for each applicable requirement is/are the method(s) specified in the existing ROP, Permits to Install that have not yet been incorporated into that ROP, and all other applicable requirements not currently contained in the existing ROP. If any of the above are checked No, identify the emission unit(s) or flexible group(s) affected and the specific condition number(s) or applicable requirement for which the source is or will be out of compliance at the time of issuance of the ROP renewal on an AI-001 Form. Provide a compliance plan and schedule of compliance on an AI-001 Form.	

Name and Title of the Responsible Official (Print or Type)

Mark Crockford, Mill Manager

As a Responsible Official, I certify that, based on information and belief formed after reasonable inquiry, the statements and information in this application are true, accurate, and complete.

Mark Crockford / Mark Crockford
Signature of Responsible Official

7/28/20
Date

SRN: A0884	Section Number (if applicable):

PART C: SOURCE REQUIREMENT INFORMATION

Answer the questions below for specific requirements or programs to which the source may be subject.

C1.	Actual emissions and associated data from **all** emission units with applicable requirements (including those identified in the existing ROP, Permits to Install and other equipment that have not yet been incorporated into the ROP) are required to be reported in MAERS. Are there any emissions and associated data that have not been reported in MAERS for the most recent emissions reporting year? If Yes, identify the emission unit(s) that was/were not reported in MAERS on an AI-001 Form. Applicable MAERS form(s) for unreported emission units must be included with this application.	☐ Yes ☒ No
C2.	Is this source subject to the federal regulations on ozone-depleting substances? (40 CFR Part 82)	☒ Yes ☐ No
C3.	Is this source subject to the federal Chemical Accident Prevention Provisions? (Section 112(r) of the Clean Air Act Amendments, 40 CFR Part 68) If Yes, a Risk Management Plan (RMP) and periodic updates must be submitted to the USEPA. Has an updated RMP been submitted to the USEPA?	☒ Yes ☐ No ☒ Yes ☐ No
C4.	Has this stationary source **added or modified** equipment since the last ROP renewal that changes the potential to emit (PTE) for criteria pollutant (CO, NOx, PM10, PM2.5, SO_2, VOC, lead) emissions? If Yes, include potential emission calculations (or the PTI and/or ROP revision application numbers, or other references for the PTE demonstration) for the added or modified equipment on an AI-001 Form. If No, criteria pollutant potential emission calculations do not need to be included.	☒ Yes ☐ No
C5.	Has this stationary source **added or modified** equipment since the last ROP renewal that changes the PTE for hazardous air pollutants (HAPs) regulated by Section 112 of the federal Clean Air Act? If Yes, include potential emission calculations (or the PTI and/or ROP revision application numbers or other references for the PTE demonstration) for the added or modified equipment on an AI-001 Form. Fugitive emissions must be included in HAP emission calculations. If No, HAP potential emission calculations do not need to be included.	☒ Yes ☐ No
C6.	Are any emission units subject to the Cross-State Air Pollution Rule (CSAPR)? If Yes, identify the specific emission unit(s) subject to CSAPR on an AI-001 Form.	☐ Yes ☒ No
C7.	Are any emission units subject to the federal Acid Rain Program? If Yes, identify the specific emission unit(s) subject to the federal Acid Rain Program on an AI-001 Form. Is an Acid Rain Permit Renewal Application included with this application?	☐ Yes ☒ No ☐ Yes ☒ No
C8.	Are any emission units identified in the existing ROP subject to compliance assurance monitoring (CAM)? If Yes, identify the specific emission unit(s) subject to CAM on an AI-001 Form. If a CAM plan has not been previously submitted to the MDEQ, one must be included with the ROP renewal application on an AI-001 Form. If the CAM Plan has been updated, include an updated copy. Is a CAM plan included with this application? If a CAM Plan is included, check the type of proposed monitoring included in the Plan: 1. Monitoring proposed by the source based on performance of the control device, or 2. Presumptively Acceptable Monitoring, if eligible	☒ Yes ☐ No ☒ Yes ☐ No ☒ ☐
C9.	Does the source have any plans such as a malfunction abatement plan, fugitive dust plan, operation/maintenance plan, or any other monitoring plan that is referenced in an existing ROP, Permit to Install requirement, or any other applicable requirement? If Yes, then a copy must be submitted as part of the ROP renewal application.	☒ Yes ☐ No
C10.	Are there any specific requirements that the source proposes to be identified in the ROP as non-applicable? If Yes, then a description of the requirement and justification must be submitted as part of the ROP renewal application on an AI-001 Form.	☐ Yes ☒ No
☒	Check here if an AI-001 Form is attached to provide more information for Part C. Enter AI-001 Form ID: **AI-1**	

SRN: A0884	Section Number (if applicable):

PART D: PERMIT TO INSTALL (PTI) EXEMPT EMISSION UNIT INFORMATION

Review all emission units at the source and answer the question below.

D1. Does the source have any emission units that do not appear in the existing ROP but are required to be listed in the ROP application under R 336.1212(4) (Rule 212(4)) of the Michigan Air Pollution Control Rules? If Yes, identify the emission units in the table below. ☐ Yes ☒ No

If No, go to Part E.

Note: Emission units that are subject to process specific emission limitations or standards, even if identified in Rule 212, must be captured in either Part G or H of this application form. Identical emission units may be grouped (e.g. PTI exempt Storage Tanks).

Emission Unit ID	**Emission Unit Description**	**Rule 212(4) Citation** [e.g. Rule 212(4)(c)]	**Rule 201 Exemption Rule Citation** [e.g. Rule 282(2)(b)(i)]

Comments:

☐ Check here if an AI-001 Form is attached to provide more information for Part D. Enter AI-001 Form ID: **AI-**

SRN: A0884	Section Number (if applicable):

PART E: EXISTING ROP INFORMATION

Review all emission units and applicable requirements (including any source wide requirements) in the existing ROP and answer the questions below as they pertain to **all** emission units and **all** applicable requirements in the existing ROP.

E1. Does the source propose to make any additions, changes or deletions to terms, conditions and underlying applicable requirements as they appear in the existing ROP? If Yes, identify changes and additions on Part F, Part G and/or Part H.	☒ Yes ☐ No
E2. For each emission unit(s) identified in the existing ROP, all stacks with applicable requirements are to be reported in MAERS. Are there any stacks with applicable requirements for emission unit(s) identified in the existing ROP that were not reported in the most recent MAERS reporting year? If Yes, identity the stack(s) that was/were not reported on applicable MAERS form(s).	☐ Yes ☒ No
E3. Have any emission units identified in the existing ROP been modified or reconstructed that required a PTI? If Yes, complete Part F with the appropriate information.	☒ Yes ☐ No
E4. Have any emission units identified in the existing ROP been dismantled? If Yes, identify the emission unit(s) and the dismantle date in the comment area below or on an AI-001 Form.	☐ Yes ☒ No

Comments:

☐ Check here if an AI-001 Form is attached to provide more information for Part E. Enter AI-001 Form ID: **AI-**

SRN: A0884	Section Number (if applicable):

PART F: PERMIT TO INSTALL (PTI) INFORMATION

Review all emission units and applicable requirements at the source and answer the following questions as they pertain to **all** emission units with PTIs. Any PTI(s) identified below must be attached to the application.

F1. Has the source obtained any PTIs where the applicable requirements from the PTI have not been incorporated into the existing ROP? If Yes, complete the following table. If No, go to Part G. ☒ Yes ☐ No

Permit to Install Number	Emission Units/Flexible Group ID(s)	Description (*Include Process Equipment, Control Devices and Monitoring Devices*)	Date Emission Unit was Installed/ Modified/ Reconstructed
184-16	EURF15	The Chemical Recovery Furnace is used to regenerate chemicals used in wood pulping. The #10 Recovery Furnace (EURF15) produces steam for mill processes and steam turbine-generator sets for producing electricity. The #10 Recovery Furnace burns black liquor, natural gas, #6 fuel oil, and used oil. Also, the #10 Recovery Furnace receives gases from enclosures and closed-vent systems and is used to incinerate High Volume Low Concentration noncondensable gases from the Digester System, Brownstock System, Evaporator System, and Chemical Recovery Furnace System. Emissions are controlled by an electrostatic precipitator.	October 2017

F2. Do any of the PTIs listed above change, add, or delete terms/conditions to **established emission units** in the existing ROP? If Yes, identify the emission unit(s) or flexible group(s) affected in the comments area below or on an AI-001 Form and identify all changes, additions, and deletions in a mark-up of the existing ROP. ☒ Yes ☐ No

F3. Do any of the PTIs listed above identify **new emission units** that need to be incorporated into the ROP? If Yes, submit the PTIs as part of the ROP renewal application on an AI-001 Form, and include the new emission unit(s) or flexible group(s) in the mark-up of the existing ROP. ☐ Yes ☒ No

F4. Are there any stacks with applicable requirements for emission unit(s) identified in the PTIs listed above that were not reported in MAERS for the most recent emissions reporting year? If Yes, identity the stack(s) that were not reported on the applicable MAERS form(s). ☐ Yes ☒ No

F5. Are there any proposed administrative changes to any of the emission unit names, descriptions or control devices in the PTIs listed above for any emission units not already incorporated into the ROP? If Yes, describe the changes on an AI-001 Form. ☐ Yes ☒ No

Comments:
Horsepower monitoring requirement on the Recovery Furnace (EURF15) was removed, which is reflected in the redline version of the ROP.

☐ Check here if an AI-001 Form is attached to provide more information for Part F. Enter AI-001 Form ID: **AI-**

SRN: A0884	Section Number (if applicable):

PART G: EMISSION UNITS MEETING THE CRITERIA OF RULES 281(2)(h), 285(2)(r)(iv), 287(2)(c), OR 290

Review all emission units and applicable requirements at the source and answer the following questions.

G1. Does the source have any new and/or existing emission units which do not already appear in the existing ROP and which meet the criteria of Rules 281(2)(h), 285(2)(r)(iv), 287(2)(c), or 290.

If Yes, identify the emission units in the table below. If No, go to Part H. ☐ Yes ☒ No

Note: If several emission units were installed under the same rule above, provide a description of each and an installation/modification/reconstruction date for each.

Origin of Applicable Requirements	**Emission Unit Description –** ***Provide Emission Unit ID and a description of Process Equipment, Control Devices and Monitoring Devices***	**Date Emission Unit was Installed/ Modified/ Reconstructed**
☐ Rule 281(2)(h) or 285(2)(r)(iv) cleaning operation		
☐ Rule 287(2)(c) surface coating line		
☐ Rule 290 process with limited emissions		

Comments:

☐ Check here if an AI-001 Form is attached to provide more information for Part G. Enter AI-001 Form ID: **AI-**

SRN: A0884	Section Number (if applicable):

PART H: REQUIREMENTS FOR ADDITION OR CHANGE

Complete this part of the application form for all proposed additions, changes or deletions to the existing ROP. This includes state or federal regulations that the source is subject to and that must be incorporated into the ROP or other proposed changes to the existing ROP. **Do not include additions or changes that have already been identified in Parts F or G of this application form.** If additional space is needed copy and complete an additional Part H.

Complete a separate Part H for each emission unit with proposed additions and/or changes.

H1. Are there changes that need to be incorporated into the ROP that have not been identified in Parts F and G? If Yes, answer the questions below.	☒ Yes ☐ No
H2. Are there any proposed administrative changes to any of the existing emission unit names, descriptions or control devices in the ROP? If Yes, describe the changes in questions H8 – H16 below and in the affected Emission Unit Table(s) in the mark-up of the ROP.	☐ Yes ☒ No
H3. Does the source propose to add a new emission unit or flexible group to the ROP not previously identified in Parts F or G? If Yes, identify and describe the emission unit name, process description, control device(s), monitoring device(s) and applicable requirements in questions H8 – H16 below and in a new Emission Unit Table in the mark-up of the ROP. See instructions on how to incorporate a new emission unit/flexible group into the ROP.	☒ Yes ☐ No
H4. Does the source propose to add new state or federal regulations to the existing ROP? If Yes, on an AI-001 Form, identify each emission unit/flexible group that the new regulation applies to and identify each state or federal regulation that should be added. Also, describe the new requirements in questions H8 – H16 below and add the specific requirements to existing emission units/flexible groups in the mark-up of the ROP, create a new Emission Unit/Flexible Group Table, or add an AQD template table for the specific state or federal requirement.	☒ Yes ☐ No
H5. Has a Consent Order/Consent Judgment (CO/CJ) been issued where the requirements were not incorporated into the existing ROP? If Yes, list the CO/CJ number(s) below and add or change the conditions and underlying applicable requirements in the appropriate Emission Unit/Flexible Group Tables in the mark-up of the ROP. Verso Escanaba LLC is currently undergoing a negotiations for a Consent Order (CO) issued in October 2019 in regards to an HCl compliance test in August 2019. The CO has not gone through public comment at the time of the Permit Application submittal.	☒ Yes ☐ No
H6. Does the source propose to add, change and/or delete **source-wide** requirements? If Yes, identify the addition/change/deletion in a mark-up of the corresponding section of the ROP and provide a justification below.	☐ Yes ☒ No
H7. Are you proposing to **streamline** any requirements? If Yes, identify the streamlined and subsumed requirements and the EU ID, and provide a justification for streamlining the applicable requirement below. VE is merging EU11B68 into FGFAHS68 to form a new flexible group currently labeled FG11BFA.	☒ Yes ☐ No

SRN: A0884	Section Number (if applicable):

PART H: REQUIREMENTS FOR ADDITION OR CHANGE – (continued)

H8. Does the source propose to add, change and/or delete **emission limit** requirements? If Yes, identify the addition/change/deletion in a mark-up of the corresponding section of the ROP and provide a justification below.	☐ Yes ☒ No
H9. Does the source propose to add, change and/or delete **material limit** requirements? If Yes, identify the addition/change/deletion in a mark-up of the corresponding section of the ROP and provide a justification below.	☐ Yes ☒ No
H10. Does the source propose to add, change and/or delete **process/operational restriction** requirements? If Yes, identify the addition/change/deletion in a mark-up of the corresponding section of the ROP and provide a justification below.	☐ Yes ☒ No
H11. Does the source propose to add, change and/or delete **design/equipment parameter** requirements? If Yes, identify the addition/change/deletion in a mark-up of the corresponding section of the ROP and provide a justification below.	☐ Yes ☒ No
H12. Does the source propose to add, change and/or delete **testing/sampling** requirements? If Yes, identify the addition/change/deletion in a mark-up of the corresponding section of the ROP and provide a justification below.	☐ Yes ☒ No
H13. Does the source propose to add, change and/or delete **monitoring/recordkeeping** requirements? If Yes, identify the addition/change/deletion in a mark-up of the corresponding section of the ROP and provide a justification below. VE is changing the 3-hour rolling average for the Bleach Plant to 3-hour averages.	☒ Yes ☐ No
H14. Does the source propose to add, change and/or delete **reporting** requirements? If Yes, identify the addition/change/deletion in a mark-up of the corresponding section of the ROP and provide a justification below.	☐ Yes ☒ No

SRN:	Section Number (if applicable):

PART H: REQUIREMENTS FOR ADDITION OR CHANGE – (continued)

H15. Does the source propose to add, change and/or delete **stack/vent restrictions**? If Yes, identify the addition/change/deletion in a mark-up of the corresponding section of the ROP and provide a justification below.	☐ Yes ☒ No
H16. Does the source propose to add, change and/or delete any **other** requirements? If Yes, identify the addition/change/deletion in a mark-up of the corresponding section of the ROP and provide a justification below.	☐ Yes ☒ No
H17. Does the source propose to add terms and conditions for an alternative operating scenario or intra-facility trading of emissions? If Yes, identify the proposed conditions in a mark-up of the corresponding section of the ROP and provide a justification below.	☐ Yes ☒ No
☒ Check here if an AI-001 Form is attached to provide more information for Part H. Enter AI-001 Form ID: **AI**-2	

EGLE

RENEWABLE OPERATING PERMIT APPLICATION
AI-001: ADDITIONAL INFORMATION

This information is required by Article II, Chapter 1, part 55 (Air Pollution Control) of P.A. 451 of 1994, as amended, and the Federal Clean Air Act of 1990. Failure to obtain a permit required by Part 55 may result in penalties and/or imprisonment. Please type or print clearly. Refer to instructions for additional information to complete this form.

	SRN: A0884	Section Number (if applicable): 1

1. Additional Information ID
AI-1

Additional Information

2. Is This Information Confidential? ☐ Yes ☒ No

C.4/C.5 - Verso Escanaba submitted the application for PTI 184-16 in October 2016 and received the official PTI on May 2, 2017.

C.8 – Units affected by CAM:
- Boiler 9 (EU9B03)
- Boiler 11 (EU11B68)
- Thermal Oxidizer (EUOC33)
- Lime Slaker (EUS29)
- Lime Storage Bins (EULKI29)

C.9. - Submitted in the application is the Verso Escanaba Inspection and Maintenance plan. This is the same plan required and referred to by EGLE in this application as the Operation and Maintenance plan.

EGLE

RENEWABLE OPERATING PERMIT APPLICATION
AI-001: ADDITIONAL INFORMATION

This information is required by Article II, Chapter 1, part 55 (Air Pollution Control) of P.A. 451 of 1994, as amended, and the Federal Clean Air Act of 1990. Failure to obtain a permit required by Part 55 may result in penalties and/or imprisonment. Please type or print clearly. Refer to instructions for additional information to complete this form.

	SRN: A0884	Section Number (if applicable): 1

1. Additional Information ID
AI-2

Additional Information

2. Is This Information Confidential? ☐ Yes ☒ No

Verso Escanaba LLC is currently undergoing negotiations for a Consent Order (CO) issued in October 2019 in regard to an HCI compliance test in August 2019. The CO has not gone through public comment at the time of the Permit Application submittal.

EGLE

RENEWABLE OPERATING PERMIT APPLICATION
AI-001: ADDITIONAL INFORMATION

This information is required by Article II, Chapter 1, part 55 (Air Pollution Control) of P.A. 451 of 1994, as amended, and the Federal Clean Air Act of 1990. Failure to obtain a permit required by Part 55 may result in penalties and/or imprisonment. Please type or print clearly. Refer to instructions for additional information to complete this form.

	SRN: A0884	Section Number (if applicable): 1

1. Additional Information ID
AI-3

Additional Information

2. Is This Information Confidential? ☐ Yes ☒ No

VE removed the following flexible groups FGEVAPORATORMOD, FGRFMOD, AND FG4PM from the permit based on Section VI.2 in each flexible group since the condition has been met for the required monitoring peroids. The conditions from the flexible groups have been added into the permit.

Marked-Up (Red Line) Version of Current ROP

MICHIGAN DEPARTMENT OF ENVIRONMENT, GREAT LAKES, AND ENERGY~~MICHIGAN DEPARTMENT OF ENVIRONMENTAL QUALITY~~
AIR QUALITY DIVISION

EFFECTIVE DATE: ~~February 26, 2016~~

ISSUED TO

~~Escanaba Paper Company~~Verso Escanaba LLC
and
Omya, Incorporated.

State Registration Number (SRN): A0884

LOCATED AT

7100 County Road 426, Escanaba, Delta County, Michigan 49829

RENEWABLE OPERATING PERMIT

Permit Number: MI-ROP-A0884-2016

Expiration Date: ~~February 26, 2021~~

Administratively Complete ROP Renewal Application Due Between
August 26, 2019 and August 26, 2020

This Renewable Operating Permit (ROP) is issued in accordance with and subject to Section 5506(3) of Part 55, Air Pollution Control, of the Natural Resources and Environmental Protection Act, 1994 PA 451, as amended (Act 451). Pursuant to Michigan Air Pollution Control Rule 210(1), this ROP constitutes the permittee's authority to operate the stationary source identified above in accordance with the general conditions, special conditions and attachments contained herein. Operation of the stationary source and all emission units listed in the permit are subject to all applicable future or amended rules and regulations pursuant to Act 451 and the federal Clean Air Act.

SOURCE-WIDE PERMIT TO INSTALL

Permit Number: MI-PTI-A0884-2016

This Permit to Install (PTI) is issued in accordance with and subject to Section 5505(5) of Act 451. Pursuant to Michigan Air Pollution Control Rule 214a, the terms and conditions herein, identified by the underlying applicable requirement citation of Rule 201(1)(a), constitute a federally enforceable PTI. The PTI terms and conditions do not expire and remain in effect unless the criteria of Rule 201(6) are met. Operation of all emission units identified in the PTI is subject to all applicable future or amended rules and regulations pursuant to Act 451 and the federal Clean Air Act.

MICHIGAN DEPARTMENT OF ENVIRONMENT, GREAT LAKES, AND ENERGY~~Michigan Department of Environmental Quality~~

____

(Rev. 06-22-15)

Ed Lancaster, Marquette District Supervisor~~Dan W. Maki, Upper Peninsula District Supervisor~~

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AUTHORITY AND ENFORCEABILITY

For the purpose of this permit, the **permittee** is defined as any person who owns or operates an emission unit at a stationary source for which this permit has been issued. The **department** is defined in Rule 104(d) as the Director of the Michigan Department of Environment, Great Lakes, and Energy (EGLE)ICHIGAN ~~Michigan Department of Environmental Quality (MDEQEGLE)~~ or his or her designee.

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The permittee shall comply with all specific details in the permit terms and conditions and the cited underlying applicable requirements. All terms and conditions in this ROP are both federally enforceable and state enforceable unless otherwise footnoted. Certain terms and conditions are applicable to most stationary sources for which an ROP has been issued. These general conditions are included in Part A of this ROP. Other terms and conditions may apply to a specific emission unit, several emission units which are represented as a flexible group, or the entire stationary source which is represented as a Source-Wide group. Special conditions are identified in Parts B, C, D and/or the appendices.

In accordance with Rule 213(2)(a), all underlying applicable requirements are identified for each ROP term or condition. All terms and conditions that are included in a PTI are streamlined, subsumed and/or are state-only enforceable will be noted as such.

In accordance with Section 5507 of Act 451, the permittee has included in the ROP application a compliance certification, a schedule of compliance, and a compliance plan. For applicable requirements with which the source is in compliance, the source will continue to comply with these requirements. For applicable requirements with which the source is not in compliance, the source will comply with the detailed schedule of compliance requirements that are incorporated as an appendix in this ROP. Furthermore, for any applicable requirements effective after the date of issuance of this ROP, the stationary source will meet the requirements on a timely basis, unless the underlying applicable requirement requires a more detailed schedule of compliance.

Issuance of this permit does not obviate the necessity of obtaining permits or approvals from other units of government as required by law.

SECTION 1 – ~~ESCANABA PAPER COMPANY~~VERSO ESCANABA LLC

A. GENERAL CONDITIONS

Permit Enforceability

- All conditions in this permit are both federally enforceable and state enforceable unless otherwise noted. **(R 336.1213(5))**

- Those conditions that are hereby incorporated in a state-only enforceable Source-Wide PTI pursuant to Rule 201(2)(d) are designated by footnote one. **(R 336.1213(5)(a), R 336.1214a(5))**

- Those conditions that are hereby incorporated in a federally enforceable Source-Wide PTI pursuant to Rule 201(2)(c) are designated by footnote two. **(R 336.1213(5)(b), R 336.1214a(3))**

General Provisions

1. The permittee shall comply with all conditions of this ROP. Any ROP noncompliance constitutes a violation of Act 451, and is grounds for enforcement action, for ROP revocation or revision, or for denial of the renewal of the ROP. All terms and conditions of this ROP that are designated as federally enforceable are enforceable by the Administrator of the United States Environmental Protection Agency (USEPA) and by citizens under the provisions of the federal Clean Air Act (CAA). Any terms and conditions based on applicable requirements which are designated as "state-only" are not enforceable by the USEPA or citizens pursuant to the CAA. **(R 336.1213(1)(a))**

2. 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 ROP. **(R 336.1213(1)(b))**

3. This ROP may be modified, revised, or revoked for cause. The filing of a request by the permittee for a permit modification, revision, or termination, or a notification of planned changes or anticipated noncompliance does not stay any ROP term or condition. This does not supersede or affect the ability of the permittee to make changes, at the permittee's own risk, pursuant to Rule 215 and Rule 216. **(R 336.1213(1)(c))**

4. The permittee shall allow the department, or an authorized representative of the department, upon presentation of credentials and other documents as may be required by law and upon stating the authority for and purpose of the investigation, to perform any of the following activities **(R 336.1213(1)(d))**:
   a. Enter, at reasonable times, a stationary source or other premises where emissions-related activity is conducted or where records must be kept under the conditions of the ROP.
   b. Have access to and copy, at reasonable times, any records that must be kept under the conditions of the ROP.
   c. Inspect, at reasonable times, any of the following:
      i. Any stationary source.
      ii. Any emission unit.
      iii. Any equipment, including monitoring and air pollution control equipment.
      iv. Any work practices or operations regulated or required under the ROP.
   d. As authorized by Section 5526 of Act 451, sample or monitor at reasonable times substances or parameters for the purpose of assuring compliance with the ROP or applicable requirements.

5. The permittee shall furnish to the department, within a reasonable time, any information the department may request, in writing, to determine whether cause exists for modifying, revising, or revoking the ROP or to determine compliance with this ROP. Upon request, the permittee shall also furnish to the department copies of any records that are required to be kept as a term or condition of this ROP. For information which is claimed by the permittee to be confidential, consistent with the requirements of the 1976 PA 442, MCL §15.231 et seq., and known as the Freedom of Information Act, the person may also be required to furnish the records directly to the USEPA together with a claim of confidentiality. **(R 336.1213(1)(e))**

6. A challenge by any person, the Administrator of the USEPA, or the department to a particular condition or a part of this ROP shall not set aside, delay, stay, or in any way affect the applicability or enforceability of any other condition or part of this ROP. **(R 336.1213(1)(f))**

7. The permittee shall pay fees consistent with the fee schedule and requirements pursuant to Section 5522 of Act 451. **(R 336.1213(1)(g))**

8. This ROP does not convey any property rights or any exclusive privilege. **(R 336.1213(1)(h))**

Equipment & Design

9. Any collected air contaminants shall be removed as necessary to maintain the equipment at the required operating efficiency. The collection and disposal of air contaminants shall be performed in a manner so as to minimize the introduction of contaminants to the outer air. Transport of collected air contaminants in Priority I and II areas requires the use of material handling methods specified in Rule 370(2).[2] **(R 336.1370)**

10. Any air cleaning device shall be installed, maintained, and operated in a satisfactory manner and in accordance with the Michigan Air Pollution Control rules and existing law. **(R 336.1910)**

Emission Limits

11. Unless otherwise specified in this ROP, the permittee shall comply with Rule 301, which states, in part, "Except as provided in subrules 2, 3, and 4 of this rule, a person shall not cause or permit to be discharged into the outer air from a process or process equipment a visible emission of a density greater than the most stringent of the following:" [2] **(R 336.1301(1))**
    a. A 6-minute average of 20% opacity, except for one 6-minute average per hour of not more than 27% opacity.
    b. A limit specified by an applicable federal new source performance standard.

    The grading of visible emissions shall be determined in accordance with Rule 303.

12. The permittee shall not cause or permit the emission of an air contaminant or water vapor in quantities that cause, alone or in reaction with other air contaminants, either of the following:
    a. Injurious effects to human health or safety, animal life, plant life of significant economic value, or property.[1] **(R 336.1901(a))**
    b. Unreasonable interference with the comfortable enjoyment of life and property.[1] **(R 336.1901(b))**

Testing/Sampling

13. The department may require the owner or operator of any source of an air contaminant to conduct acceptable performance tests, at the owner's or operator's expense, in accordance with Rule 1001 and Rule 1003, under any of the conditions listed in Rule 1001(1).[2] **(R 336.2001)**

14. Any required performance testing shall be conducted in accordance with Rule 1001(2), Rule 1001(3) and Rule 1003. **(R 336.2001(2), R 336.2001(3), R 336.2003(1))**

15. Any required test results shall be submitted to the Air Quality Division (AQD) in the format prescribed by the applicable reference test method within 60 days following the last date of the test. **(R 336.2001(5))**

Monitoring/Recordkeeping

16. Records of any periodic emission or parametric monitoring required in this ROP shall include the following information specified in Rule 213(3)(b)(i), where appropriate. **(R 336.1213(3)(b))**
    a. The date, location, time, and method of sampling or measurements.
    b. The dates the analyses of the samples were performed.
    c. The company or entity that performed the analyses of the samples.
    d. The analytical techniques or methods used.
    e. The results of the analyses.
    f. The related process operating conditions or parameters that existed at the time of sampling or measurement.

17. All required monitoring data, support information and all reports, including reports of all instances of deviation from permit requirements, shall be kept and furnished to the department upon request for a period of not less than 5 years from the date of the monitoring sample, measurement, report or application. Support information includes all calibration and maintenance records and all original strip-chart recordings, or other original data records, for continuous monitoring instrumentation and copies of all reports required by the ROP. **(R 336.1213(1)(e), R 336.1213(3)(b)(ii))**

Certification & Reporting

18. Except for the alternate certification schedule provided in Rule 213(3)(c)(iii)(B), any document required to be submitted to the department as a term or condition of this ROP shall contain an original certification by a Responsible Official which states that, based on information and belief formed after reasonable inquiry, the statements and information in the document are true, accurate, and complete. **(R 336.1213(3)(c))**

19. A Responsible Official shall certify to the appropriate AQD District Office and to the USEPA that the stationary source is and has been in compliance with all terms and conditions contained in the ROP except for deviations that have been or are being reported to the appropriate AQD District Office pursuant to Rule 213(3)(c). This certification shall include all the information specified in Rule 213(4)(c)(i) through (v) and shall state that, based on information and belief formed after reasonable inquiry, the statements and information in the certification are true, accurate, and complete. The USEPA address is: USEPA, Air Compliance Data - Michigan, Air and Radiation Division, 77 West Jackson Boulevard, Chicago, Illinois 60604. **(R 336.1213(4)(c))**

20. The certification of compliance shall be submitted annually for the term of this ROP as detailed in the special conditions, or more frequently if specified in an applicable requirement or in this ROP. **(R 336.1213(4)(c))**

21. The permittee shall promptly report any deviations from ROP requirements and certify the reports. The prompt reporting of deviations from ROP requirements is defined in Rule 213(3)(c)(ii) as follows, unless otherwise described in this ROP. **(R 336.1213(3)(c))**
    a. For deviations that exceed the emissions allowed under the ROP, prompt reporting means reporting consistent with the requirements of Rule 912 as detailed in Condition 25. All reports submitted pursuant to this paragraph shall be promptly certified as specified in Rule 213(3)(c)(iii).
    b. For deviations which exceed the emissions allowed under the ROP and which are not reported pursuant to Rule 912 due to the duration of the deviation, prompt reporting means the reporting of all deviations in the semiannual reports required by Rule 213(3)(c)(i). The report shall describe reasons for each deviation and the actions taken to minimize or correct each deviation.
    c. For deviations that do not exceed the emissions allowed under the ROP, prompt reporting means the reporting of all deviations in the semiannual reports required by Rule 213(3)(c)(i). The report shall describe the reasons for each deviation and the actions taken to minimize or correct each deviation.

22. For reports required pursuant to Rule 213(3)(c)(ii), prompt certification of the reports is described in Rule 213(3)(c)(iii) as either of the following **(R 336.1213(3)(c))**:
    a. Submitting a certification by a Responsible Official with each report which states that, based on information and belief formed after reasonable inquiry, the statements and information in the report are true, accurate, and complete.
    b. Submitting, within 30 days following the end of a calendar month during which one or more prompt reports of deviations from the emissions allowed under the ROP were submitted to the department pursuant to Rule 213(3)(c)(ii), a certification by a Responsible Official which states that, "based on information and belief formed after reasonable inquiry, the statements and information contained in each of the reports submitted during the previous month were true, accurate, and complete". The certification shall include a listing of the reports that are being certified. Any report submitted pursuant to Rule 213(3)(c)(ii) that will be certified on a monthly basis pursuant to this paragraph shall include a statement that certification of the report will be provided within 30 days following the end of the calendar month.

23. Semiannually for the term of the ROP as detailed in the special conditions, or more frequently if specified, the permittee shall submit certified reports of any required monitoring to the appropriate AQD District Office. All instances of deviations from ROP requirements during the reporting period shall be clearly identified in the reports. **(R 336.1213(3)(c)(i))**

24. On an annual basis, the permittee shall report the actual emissions, or the information necessary to determine the actual emissions, of each regulated air pollutant as defined in Rule 212(6) for each emission unit utilizing the emissions inventory forms provided by the department. **(R 336.1212(6))**

25. The permittee shall provide notice of an abnormal condition, start-up, shutdown, or malfunction that results in emissions of a hazardous or toxic air pollutant which continue for more than one hour in excess of any applicable standard or limitation, or emissions of any air contaminant continuing for more than two hours in excess of an applicable standard or limitation, as required in Rule 912, to the appropriate AQD District Office. The notice shall be provided not later than two business days after the start-up, shutdown, or discovery of the abnormal conditions or malfunction. Notice shall be by any reasonable means, including electronic, telephonic, or oral communication. Written reports, if required under Rule 912, must be submitted to the appropriate AQD District Supervisor within 10 days after the start-up or shutdown occurred, within 10 days after the abnormal conditions or malfunction has been corrected, or within 30 days of discovery of the abnormal conditions or malfunction, whichever is first. The written reports shall include all of the information required in Rule 912(5) and shall be certified by a Responsible Official in a manner consistent with the CAA.[2] **(R 336.1912)**

Permit Shield

26. Compliance with the conditions of the ROP shall be considered compliance with any applicable requirements as of the date of ROP issuance, if either of the following provisions is satisfied. **(R 336.1213(6)(a)(i), R 336.1213(6)(a)(ii))**
    a. The applicable requirements are included and are specifically identified in the ROP.
    b. The permit includes a determination or concise summary of the determination by the department that other specifically identified requirements are not applicable to the stationary source.

    Any requirements identified in Part E of this ROP have been identified as non-applicable to this ROP and are included in the permit shield.

27. Nothing in this ROP shall alter or affect any of the following:
    a. The provisions of Section 303 of the CAA, emergency orders, including the authority of the USEPA under Section 303 of the CAA. **(R 336.1213(6)(b)(i))**
    b. The liability of the owner or operator of this source for any violation of applicable requirements prior to or at the time of this ROP issuance. **(R 336.1213(6)(b)(ii))**
    c. The applicable requirements of the acid rain program, consistent with Section 408(a) of the CAA. **(R 336.1213(6)(b)(iii))**

d. The ability of the USEPA to obtain information from a source pursuant to Section 114 of the CAA. **(R 336.1213(6)(b)(iv))**

28. The permit shield shall not apply to provisions incorporated into this ROP through procedures for any of the following:
    a. Operational flexibility changes made pursuant to Rule 215. **(R 336.1215(5))**
    b. Administrative Amendments made pursuant to Rule 216(1)(a)(i)-(iv). **(R 336.1216(1)(b)(iii))**
    c. Administrative Amendments made pursuant to Rule 216(1)(a)(v) until the amendment has been approved by the department. **(R 336.1216(1)(c)(iii))**
    d. Minor Permit Modifications made pursuant to Rule 216(2). **(R 336.1216(2)(f))**
    e. State-Only Modifications made pursuant to Rule 216(4) until the changes have been approved by the department. **(R 336.1216(4)(e))**

29. Expiration of this ROP results in the loss of the permit shield. If a timely and administratively complete application for renewal is submitted not more than 18 months, but not less than 6 months, before the expiration date of the ROP, but the department fails to take final action before the end of the ROP term, the existing ROP does not expire until the renewal is issued or denied, and the permit shield shall extend beyond the original ROP term until the department takes final action. **(R 336.1217(1)(c), R 336.1217(1)(a))**

Revisions

30. For changes to any process or process equipment covered by this ROP that do not require a revision of the ROP pursuant to Rule 216, the permittee must comply with Rule 215. **(R 336.1215, R 336.1216)**

31. A change in ownership or operational control of a stationary source covered by this ROP shall be made pursuant to Rule 216(1). **(R 336.1219(2))**

32. For revisions to this ROP, an administratively complete application shall be considered timely if it is received by the department in accordance with the time frames specified in Rule 216. **(R 336.1210(10))**

33. Pursuant to Rule 216(1)(b)(iii), Rule 216(2)(d) and Rule 216(4)(d), after a change has been made, and until the department takes final action, the permittee shall comply with both the applicable requirements governing the change and the ROP terms and conditions proposed in the application for the modification. During this time period, the permittee may choose to not comply with the existing ROP terms and conditions that the application seeks to change. However, if the permittee fails to comply with the ROP terms and conditions proposed in the application during this time period, the terms and conditions in the ROP are enforceable. **(R 336.1216(1)(c)(iii), R 336.1216(2)(d), R 336.1216(4)(d))**

Reopenings

34. A ROP shall be reopened by the department prior to the expiration date and revised by the department under any of the following circumstances:
    a. If additional requirements become applicable to this stationary source with three or more years remaining in the term of the ROP, but not if the effective date of the new applicable requirement is later than the ROP expiration date. **(R 336.1217(2)(a)(i))**
    b. If additional requirements pursuant to Title IV of the CAA become applicable to this stationary source. **(R 336.1217(2)(a)(ii))**
    c. If the department determines that the ROP contains a material mistake, information required by any applicable requirement was omitted, or inaccurate statements were made in establishing emission limits or the terms or conditions of the ROP. **(R 336.1217(2)(a)(iii))**
    d. If the department determines that the ROP must be revised to ensure compliance with the applicable requirements. **(R 336.1217(2)(a)(iv))**

Renewals

35. For renewal of this ROP, an administratively complete application shall be considered timely if it is received by the department not more than 18 months, but not less than 6 months, before the expiration date of the ROP. **(R 336.1210(8))**

Stratospheric Ozone Protection

36. If the permittee is subject to Title 40 of the Code of Federal Regulations (CFR), Part 82 and services, maintains, or repairs appliances except for motor vehicle air conditioners (MVAC), or disposes of appliances containing refrigerant, including MVAC and small appliances, or if the permittee is a refrigerant reclaimer, appliance owner or a manufacturer of appliances or recycling and recovery equipment, the permittee shall comply with all applicable standards for recycling and emissions reduction pursuant to 40 CFR Part 82, Subpart F.

37. If the permittee is subject to 40 CFR Part 82, and performs a service on motor (fleet) vehicles when this service involves refrigerant in the MVAC, the permittee is subject to all the applicable requirements as specified in 40 CFR Part 82, Subpart B, Servicing of Motor Vehicle Air Conditioners. The term "motor vehicle" as used in Subpart B does not include a vehicle in which final assembly of the vehicle has not been completed by the original equipment manufacturer. The term MVAC as used in Subpart B does not include the air-tight sealed refrigeration system used for refrigerated cargo or an air conditioning system on passenger buses using Hydrochlorofluorocarbon-22 refrigerant.

Risk Management Plan

38. If subject to Section 112(r) of the CAA and 40 CFR Part 68, the permittee shall register and submit to the USEPA the required data related to the risk management plan for reducing the probability of accidental releases of any regulated substances listed pursuant to Section 112(r)(3) of the CAA as amended in 40 CFR 68.130. The list of substances, threshold quantities, and accident prevention regulations promulgated under 40 CFR Part 68, do not limit in any way the general duty provisions under Section 112(r)(1).

39. If subject to Section 112(r) of the CAA and 40 CFR Part 68, the permittee shall comply with the requirements of 40 CFR Part 68, no later than the latest of the following dates as provided in 40 CFR 68.10(a):
    a. June 21, 1999,
    b. Three years after the date on which a regulated substance is first listed under 40 CFR 68.130, or
    c. The date on which a regulated substance is first present above a threshold quantity in a process.

40. If subject to Section 112(r) of the CAA and 40 CFR Part 68, the permittee shall submit any additional relevant information requested by any regulatory agency necessary to ensure compliance with the requirements of 40 CFR Part 68.

41. If subject to Section 112(r) of the CAA and 40 CFR Part 68, the permittee shall annually certify compliance with all applicable requirements of Section 112(r) as detailed in Rule 213(4)(c)). **(40 CFR Part 68)**

Emission Trading

42. Emission averaging and emission reduction credit trading are allowed pursuant to any applicable interstate or regional emission trading program that has been approved by the Administrator of the USEPA as a part of Michigan's State Implementation Plan. Such activities must comply with Rule 215 and Rule 216. **(R 336.1213(12))**

Permit To Install (PTI)

43. The process or process equipment included in this permit shall not be reconstructed, relocated, or modified unless a PTI authorizing such action is issued by the department, except to the extent such action is exempt from the PTI requirements by any applicable rule.[2] **(R 336.1201(1))**

44. The department may, after notice and opportunity for a hearing, revoke PTI terms or conditions if evidence indicates the process or process equipment is not performing in accordance with the terms and conditions of the PTI or is violating the department's rules or the CAA.[2] **(R 336.1201(8), Section 5510 of Act 451)**

45. The terms and conditions of a PTI shall apply to any person or legal entity that now or hereafter owns or operates the process or process equipment at the location authorized by the PTI. If a new owner or operator submits a written request to the department pursuant to Rule 219 and the department approves the request, this PTI will be amended to reflect the change of ownership or operational control. The request must include all of the information required by Subrules (1)(a), (b) and (c) of Rule 219. The written request shall be sent to the appropriate AQD District Supervisor, ~~MDEQ~~EGLE.[2] **(R 336.1219)**

46. If the installation, reconstruction, relocation, or modification of the equipment for which PTI terms and conditions have been approved has not commenced within 18 months of the original PTI issuance date, or has been interrupted for 18 months, the applicable terms and conditions from that PTI, as incorporated into the ROP, shall become void unless otherwise authorized by the department. Furthermore, the person to whom that PTI was issued, or the designated authorized agent, shall notify the department via the Supervisor, Permit Section, ~~MDEQ~~EGLE, AQD, P. O. Box 30260, Lansing, Michigan 48909, if it is decided not to pursue the installation, reconstruction, relocation, or modification of the equipment allowed by the terms and conditions from that PTI.[2] **(R 336.1201(4))**

Footnotes:
[1]This condition is state-only enforceable and was established pursuant to Rule 201(1)(b).
[2]This condition is federally enforceable and was established pursuant to Rule 201(1)(a).

B. SOURCE-WIDE CONDITIONS

Part B outlines the Source-Wide Terms and Conditions that apply to this stationary source. The permittee is subject to these special conditions for the stationary source in addition to the general conditions in Part A and any other terms and conditions contained in this ROP.

The permittee shall comply with all specific details in the special conditions and the underlying applicable requirements cited. If a specific condition type does not apply to this source, NA (not applicable) has been used in the table. If there are no Source-Wide Conditions, this section will be left blank.

SOURCE-WIDE CONDITIONS

POLLUTION CONTROL EQUIPMENT

NA

I. EMISSION LIMIT(S)

Pollutant	Limit	Time Period/ Operating Scenario	Equipment	Monitoring/ Testing Method	Underlying Applicable Requirements
NA	NA	NA	NA	NA	NA

II. MATERIAL LIMIT(S)

Material	Limit	Time Period/ Operating Scenario	Equipment	Monitoring/ Testing Method	Underlying Applicable Requirements
NA	NA	NA	NA	NA	NA

III. PROCESS/OPERATIONAL RESTRICTION(S)

NA

IV. DESIGN/EQUIPMENT PARAMETER(S)

NA

V. TESTING/SAMPLING

Records shall be maintained on file for a period of five years. **(R 336.1213(3)(b)(ii))**

NA

See Appendix 5

VI. MONITORING/RECORDKEEPING

Records shall be maintained on file for a period of five years. **(R 336.1213(3)(b)(ii))**

NA

See Appendix 7

VII. REPORTING

1. Prompt reporting of deviations pursuant to General Conditions 21 and 22 of Part A. **(R 336.1213(3)(c)(ii))**

2. Semiannual reporting of monitoring and deviations pursuant to General Condition 23 of Part A. The report shall be postmarked or received by the appropriate AQD District Office by March 15 for reporting period July 1 to December 31 and September 15 for reporting period January 1 to June 30. **(R 336.1213(3)(c)(i))**

3. Annual certification of compliance pursuant to General Conditions 19 and 20 of Part A. The report shall be postmarked or received by the appropriate AQD District Office by March 15 for the previous calendar year. **(R 336.1213(4)(c))**

See Appendix 8

VIII. STACK/VENT RESTRICTION(S)

The exhaust gases from the stacks listed in the table below shall be discharged unobstructed vertically upwards to the ambient air unless otherwise noted:

Stack & Vent ID	Maximum Exhaust Dimensions (inches)	Minimum Height Above Ground (feet)	Underlying Applicable Requirements
NA	NA	NA	NA

IX. OTHER REQUIREMENT(S)

1. The permittee shall carry out a Fugitive Dust Control Program to control fugitive dust emissions from the plant roadways, material storage piles, and other operations throughout the plant, including keeping of records of fugitive dust control activities and dates carried out. **(R 336.1201, R 336.1371, R 336.1372, R 336.1901, R 336.1213(3))**

Footnotes:
[1]This condition is state-only enforceable and was established pursuant to Rule 201(1)(b).
[2]This condition is federally enforceable and was established pursuant to Rule 201(1)(a).

C. EMISSION UNIT CONDITIONS

Part C outlines terms and conditions that are specific to individual emission units listed in the Emission Unit Summary Table. The permittee is subject to the special conditions for each emission unit in addition to the General Conditions in Part A and any other terms and conditions contained in this ROP.

The permittee shall comply with all specific details in the special conditions and the underlying applicable requirements cited. If a specific condition type does not apply, NA (not applicable) has been used in the table. If there are no conditions specific to individual emission units, this section will be left blank.

EMISSION UNIT SUMMARY TABLE

The descriptions provided below are for informational purposes and do not constitute enforceable conditions.

Emission Unit ID	Emission Unit Description (Including Process Equipment & Control Device(s))	Installation Date/ Modification Date	Flexible Group ID
EU7B17	The #7 Boiler is a Riley boiler rated for 150,000 pounds of steam per hour (approximately 154 million BTU per hour heat input) that provides steam for mill processes. The #7 Boiler burns natural gas and fuel oil.	1947	~~NA~~FGMACTB07B08
EU8B13	The #8 Boiler is a Combustion Engineering boiler rated for 450,000 pounds of steam per hour (approximately 594 million BTU per hour heat input) that provides steam for mill processes and steam turbine-generator sets for producing electricity. A Flue Gas Recirculation system was installed on the #~~ ~~8 Boiler in 2003 for compliance with the NOx emission limitations specified in Rule 336.1801. The #8 Boiler burns natural gas and fuel oil.	1968 1978	FGMACTB07B08~~NA~~
EU9B03	The #9 Boiler is a Babcock & Wilcox boiler rated for 250,000 pounds of steam per hour (approximately 360 million BTU per hour heat input) that provides steam for mill processes and steam turbine-generator sets for producing electricity. The #9 Boiler burns primarily wood residue, but may also burn natural gas and paper cores. #9 Boiler emissions are controlled by a multiclone dust collector and two wet scrubbers.	1970	FG9B03, FGBMACTB09B11
EUSB03	Wood Residue Surge Bin for the #9 Boiler.	1972	FG9B03

Emission Unit ID	Emission Unit Description (Including Process Equipment & Control Device(s))	Installation Date/ Modification Date	Flexible Group ID
EU11B68	The #11 Boiler is an ABB Combustion Engineering combination fuel boiler rated for 750,000 pounds of steam per hour (approximately 1040 million BTU per hour heat input) that provides steam for mill processes and steam turbine-generator sets for producing electricity. The #11 Boiler burns natural gas and pulverized coal from four tangentially located windboxes. The boiler also burns wood residue, wastewater treatment plant residuals and tire-derived fuel from a traveling grate located at the bottom of the unit. Emissions are controlled by an over-fired air system, multiclone dust collector, and electrostatic precipitator.	1981 1986 2012	FG11BFA, FGBMACTB09B11~~NA~~
EUCH68	Coal Handling – Coal storage pile and handling processes.	1981	FG11BFA~~FGFAHS68~~
EUFH68	Fuel Handling for #11 Boiler including wood residue, wastewater treatment plant residuals, tire-derived fuel, and engineered fuel pellets.	1981	FG11BFA~~FGFAHS68~~
EU1S68	#1 Coal Silo for #11 Boiler – Surge bin for coal from feed conveyor. Emissions are controlled by a baghouse.	1981	FG11BFA~~FGFAHS68~~
EU2S68	#2 Coal Silo for #11 Boiler – Surge bin for coal from feed conveyor. Emissions are controlled by a baghouse.	1981	FG11BFA~~FGFAHS68~~
EU3S68	#3 Coal Silo for #11 Boiler – Surge bin for coal from feed conveyor. Emissions are controlled by a baghouse.	1981	FG11BFA~~FGFAHS68~~
EU1AS68	#1 Ash Silo for #11 Boiler – Collects wet, multiclone ash from the #11 Boiler dust collector hoppers. Emissions are controlled by a pugmill for ash wetting prior to truck loading.	1981	FG11BFA~~FGFAHS68~~
EU2AS68	#2 Ash Silo – Collects dry, precipitator ash from the #11 Boiler precipitator ash hoppers. Emissions are controlled by a silo baghouse and a pugmill for ash wetting prior to truck loading.	1981	FG11BFA~~FGFAHS68~~
EU1SB14	#1 Chip Surge Bin - The Chip Surge Bins are part of the pneumatic transfer system from the chippers to the screening building. Emissions are controlled by a cyclone dust collector.	1972	FGSB14
EU2SB14	#2 Chip Surge Bin - The Chip Surge Bins are part of the pneumatic transfer system from the chippers to the screening building. Emissions are controlled by a cyclone dust collector.	1972	FGSB14

Emission Unit ID	Emission Unit Description (Including Process Equipment & Control Device(s))	Installation Date/ Modification Date	Flexible Group ID
EUCS14	The Chip Thickness Screening System includes #1 Chip Reclaim Surge Bin, #2 Chip Reclaim Surge Bin, Air Density Separator #1A, Air Density Separator #1B, Air Density Separator #2A, Air Density Separator #2B. Emissions are controlled by two chip reclaim cyclones and four air density separator cyclones.	1989	NA
EURMP61	Refiner Mechanical Pulping System - From the Chip Surge Bin (EUSB61), the chips are washed, steamed and mechanically pulped in primary and secondary refiners. Following refining, the pulp is cured, screened, and washed. Typically filler, caustic, and bleaching agent are added to the pulp before entering a storage chest. The pulp is thickened and additional bleaching agent may be added. Specialty chemicals such as biocides and cleaning agents may also be used. The pulp is used as supply stock for the paper machines.	1982 2007	FGRMP61
EUCS61	Chip Silo for the Refiner Mechanical Pulping System - Chips from storage piles are blown into a Chip Silo. Emissions are controlled by a chip silo cyclone.	1982	FGRMP61
EUSB61	Chip Surge Bin for the Refiner Mechanical Pulping System – Chips from the Chip Silo (EUCS61) are processed in a disc scalper before being pneumatically transferred to the Chip Surge Bin. From the Chip Surge Bin, chips are conveyed to the Refiner Mechanical Pulping System (EURMP61). Emissions are controlled by a chip surge bin cyclone.	1982	FGRMP61
EU1PM32	The #1 Paper Machine System includes the paper machine and associated stock preparation equipment. The machine is comprised of a wet end, press section, and dry end. At the wet end, refined wood fiber ~~in~~ is introduced onto the forming board in a dilute solution. The press section is used to consolidate the web and to remove water. At the dry end, steam can dryer sections drive off remaining water. Materials added in the paper machine include alum, calcium carbonate, clay, titanium dioxide, cooked starch, retention aid, size, and dyes. Stock inputs to the blend chest may include bleached hardwood, softwood, or RMP pulp, and coated and uncoated recycled broke.	1920	FGPAPER

Emission Unit ID	Emission Unit Description (Including Process Equipment & Control Device(s))	Installation Date/ Modification Date	Flexible Group ID
EU1C36	The #1 Coater System is a double coating process in which two coating applications are applied to both the top and bottom of the sheet. Paper coating is performed to enhance the optical properties, printability, and visual appearance of the final product. Materials applied at the coater include pigments, binders, cross linkers, dyes, biocides, and dispersants. The coating is dried using infrared dryers, air float dryers, and steam can dryer sections.	1946 1994	FGCOATER
EUSS43	#1 Coater Dry Starch System - includes #1 and #2 Starch Silos, #1 and #2 Starch Day Bins, and #1 and #2 Starch Wet Out Tanks. Emissions are controlled by four baghouse dust collectors.	1946 1994	FGSTARCH
EU2PD40	The #2 Pulp Dryer System is comprised of a pulp makedown system and a pulp dryer. The pulp make down system consists of baled pulp storage and hydropulpers used for repulping baled pulp. Stock inputs to the blend chest include bleached hardwood or softwood pulp from the bleaching system as well as baled pulp. At the wet end, refined wood fiber is introduced as a dilute water solution. The press section consolidates the web and removes water. At the dry end, steam can dryer sections drive off much of the remaining water. Pulp is dried, baled, and stored. Baled pulp is used as a stock input for one of the paper machines, or may be sold as pulp.	1920	NA
EU3PM07	The #3 Paper Machine System includes the paper machine and associated stock preparation equipment. The machine is comprised of a wet end, press section, and dry end. At the wet end, refined wood fiber ~~in~~ is introduced onto the forming board in a dilute solution. The press section is used to consolidate the web and to remove water. At the dry end, steam can dryer sections drive off remaining water. Materials added in the paper machine include alum, calcium carbonate, clay, titanium dioxide, cooked starch, retention aid, size, and dyes. Stock inputs to the blend chest may include bleached hardwood, softwood, or RMP pulp, and coated and uncoated recycled broke.	1969	NA
EU1SS08	#1 Starch Silo – Starch silo for the #3 Paper Machine (EU3PM07). Emissions are controlled by a baghouse.	1969	FGSTARCH
EU1M08	#1 Starch Makedown tank – Starch Makedown tank for the #3 Paper Machine (EU3PM07). Emissions are controlled by a baghouse.	1969	FGSTARCH

Emission Unit ID	Emission Unit Description (Including Process Equipment & Control Device(s))	Installation Date/ Modification Date	Flexible Group ID
EU3C27	The #3 Coater System uses two blade coating heads to apply a top and base coat to the sheet. Paper coating is performed to enhance the optical properties, printability, and visual appearance of the final product. Materials applied at the coater include pigments, binders, cross linkers, and dyes. The coating is dried using air float dryers and steam can dryer sections.	1969	FGCOATER
EU2SS08	#2 Starch Silo – Starch silo for the #3 Coater System. Emissions are controlled by a baghouse.	1969	FGSTARCH
EU3SS08	#3 Starch Silo – Starch silo for the #3 Coater System. Emissions are controlled by a baghouse.	1969	FGSTARCH
EU2M08	#2 Starch Makedown Tank – Starch Makedown tank for the #3 Coater System. Emissions are controlled by a baghouse.	1969	FGSTARCH
EU4PM64	The #4 Paper Machine System includes the paper machine and associated preparation equipment. The machine is comprised of a wet end, press section, and dry end. At the wet end, refined wood fiber ~~in~~ is introduced onto the forming board in a dilute solution. The press section is used to consolidate the web and to remove water. At the dry end, steam can dryer sections drive off remaining water. Materials added in the paper machine include alum, calcium carbonate, clay, titanium dioxide, cooked starch, retention aid, size, and dyes. Stock inputs to the blend chest may include bleached hardwood, softwood, or RMP pulp, and coated and uncoated recycled broke.	1982 2001	FGPAPER
EU4C65	The #4 Coater System uses two blade coating heads to apply a top and base coat to the sheet. Paper coating is performed to enhance the optical properties, printability, and visual appearance of the final product. Materials applied at the coater include pigments, binders, cross linkers, and dyes. The coating is dried using infrared dryers, air float dryers, and steam can dryer sections.	1982	FGCOATER
EUSS66	Starch Storage for the #4 Coater System – Consists of the #1 and #2 Starch Silos. Emissions from each silo are controlled by a baghouse.	1982	FGSTARCH

Emission Unit ID	Emission Unit Description (Including Process Equipment & Control Device(s))	Installation Date/ Modification Date	Flexible Group ID
EUBB05	The Evaporator System consists of equipment used to concentrate weak black liquor as a part of the chemical recovery process for kraft pulping liquor. Water and volatiles are driven from the liquor using six evaporator effects followed by concentrators. Most of the vapors are condensed using non-contact surface condensers and a vapor condensing system. LVHC noncondensable gases from the evaporator hotwell are collected and vented into a closed-vent system and incinerated in the Thermal Oxidizer or the Lime Kiln as a backup incineration device.	1972 1984 2009	FGLVHC FGBBKRAFT
EUME05	Miscellaneous Evaporator System Devices consist of the black liquor storage tanks associated with the evaporator system. With the exception of the strong waste tank and the soap tank, fugitive breathing losses from these tanks are collected and incinerated in the #10 Recovery Furnace.	1972 1984	FGHVLC
EUBB22	The Digester System consists of batch digesters, blow tanks, and a blowheat condensing system. Blow and relief gases from the digesters are condensed in the blowheat system which also serves to recover heat energy and turpentine. LVHC noncondensable gases from the blowheat condensing system are enclosed and vented into a closed-vent system and incinerated in a dedicated Thermal Oxidizer or the Lime Kiln as a backup incineration device. HVLC noncondensable gases from the digester domes and capping valves are mixed with HVLC noncondensable gases from the Brownstock System, Evaporator System, and Chemical Recovery Furnace System and used for combustion air for #10 Recovery Furnace.	1972 1984	FGBBKRAFT FGLVHC FGHVLC
EUOT22	Digester Other Devices include the condensate accumulator tank, secondary blow heat condenser, and the secondary digester relief condenser.	1972 1984	FGLVHC
EUMT22	Miscellaneous Turpentine Handling Devices include the turpentine decanter and turpentine storage tank. Enclosures and a closed vent collection system route LVHC gases to the Thermal Oxidizer or the Lime Kiln as a backup for incineration.	1972 1984	FGLVHC

Emission Unit ID	Emission Unit Description (Including Process Equipment & Control Device(s))	Installation Date/ Modification Date	Flexible Group ID
EUBB33	Steam Stripping System NSPS Devices consist of the steam stripper column and reflux condenser. The Steam Stripping System is used to pre-treat kraft pulping process condensates regulated under the Standards for Kraft Pulping Process Condensates 40 CFR 63.446 (see EUCOND). Final condensate treatment is done at the Brownstock washers (see EUBB23). Enclosures and a closed vent collection system route LVHC gases to the Thermal Oxidizer or the Lime Kiln as a backup for incineration.	1972 1984	FGBBKRAFT FGLVHC
EUMC33	Miscellaneous Condensate Stripping System Devices consist of the stripper column feed tank, condensate strainers and condensate heat exchangers. Enclosures and a closed vent collection system route LVHC gases to the Thermal Oxidizer or the Lime Kiln as a backup for incineration.	1972 1984	FGLVHC
EUOC33	The Thermal Oxidizer is a dedicated incineration device for LVHC noncondensable gases from the LVHC Gas Collection System (FGLVHC) and the Kraft Mill Subpart BB Systems (FGBBKRAFT). Emissions from the Thermal Oxidizer are controlled by a packed scrubber using soda ash or caustic soda scrubbing solution to control sulfur dioxide emissions.	1972 1996	FGOC33
EUSA33	The Soda Ash Storage Tank stores soda ash for use as a Thermal Oxidizer scrubbing medium to control sulfur dioxide emissions. Emissions are controlled by a baghouse.	1991	FGOC33
EUCOND	The Condensate Collection and Treatment System is a grouping of equipment used to collect and treat kraft pulping process condensates, and which are subject to the Standards For Kraft Pulping Process Condensates 40 CFR 63.446. The equipment systems subject to the regulation are identified in 40 CFR 63.446(b). Foul condensates are collected at the stripper column feed tank. Foul condensate treatment consists of pre-treatment through the steam stripper (see EUBB33) and final treatment at the brownstock washers (see EUBB23).	NA	NA

Emission Unit ID	Emission Unit Description (Including Process Equipment & Control Device(s))	Installation Date/ Modification Date	Flexible Group ID
EUBB23	The Brownstock NSPS Devices include the knotters, ~~browstock~~brownstock washers and brownstock filtrate tanks. Brown pulp from the digester blow tanks is processed to remove knots and debris and to recover spent cooking chemicals. Washing is performed using countercurrent rotary vacuum drum washers. Water and evaporator condensate are used for washing. The washed pulp is screened, rinsed, and stored for bleaching. Weak black liquor from the filtrate chests is pumped to storage tanks in the Evaporator System (EUBB05) for further processing. Also, the Brownstock System is used for final treatment of kraft pulping process condensates regulated under the Standards for Kraft Pulping Process Condensates 40 CFR 63.446 (see Condensate Collection and Treatment System EUCOND). A closed vent gas collection system routes HVLC gases to the Recovery Furnace for incineration.	1972 1984	FGBBKRAFT
EURF15	The Chemical Recovery Furnace is used to regenerate chemicals used in wood pulping. The #10 Recovery Furnace (EURF15) is rated for 565,000 pounds of steam per hour (approximately 950 million BTU per hour heat input), and produces steam for mill processes and steam turbine-generator sets for producing electricity. The #10 Recovery Furnace burns black liquor, natural gas, #6 fuel oil, and used oil. Also, the #10 Recovery Furnace receives gases from enclosures and closed-vent systems and is used to incinerate High Volume Low Concentration noncondensable gases from the Digester System, Brownstock System, Evaporator System, and Chemical Recovery Furnace System. Emissions are controlled by an electrostatic precipitator.	1972 1994 2014	NA
EUST15	Smelt Dissolving Tank - Smelt from the recovery furnace is used to produce green liquor, a solution of sodium sulfide and sodium carbonate salts, when it is dissolved in water or weak wash in the Smelt Dissolving Tank. Emissions are controlled by a wet scrubber and mist eliminator.	1972	NA

Emission Unit ID	Emission Unit Description (Including Process Equipment & Control Device(s))	Installation Date/ Modification Date	Flexible Group ID
EUS25	The Bleaching Stage Equipment is used to whiten Brownstock pulp for papermaking. Bleaching is accomplished through the use of chemicals, bleaching towers, extraction towers, and washers. Chlorine dioxide is used for bleaching, and is manufactured on site. Off-gases from the Bleaching Stage Equipment are scrubbed in the bleach plant scrubber system, which consists of two packed scrubbers in series.	1972 1996	FGB25
EUB25	The Chlorine Dioxide Generator Plant consists of the chlorine dioxide generator and associated tanks and equipment used to manufacture and store chlorine dioxide, which is used for pulp bleaching. Off-gases from the generator and storage tanks are scrubbed with chilled water in the tail gas scrubber prior to being scrubbed in the bleach plant scrubber system.	1972 1996	FGB25
EUED25	The Extraction Devices include the mixers, towers, washers and filtrate chests associated with the pulp bleaching extraction stages.	1972 1996	FGB25
EUM25	Methanol Storage consists of the methanol storage tank, which stores methanol used in the manufacture of chlorine dioxide.	1972 1996	FGB25
EULK29	The Lime Kiln processes lime mud from Recausticizing System to regenerate calcium oxide. The Lime Kiln (EULK29) is fired with natural gas and/or fuel oil. Calcium oxide produced by the Lime Kiln is conveyed by bucket elevator to storage bins (EULKI29). The Lime Kiln acts as a backup incineration device for the Thermal Oxidizer System. Emissions are controlled by a Venturi scrubber and mist eliminator.	1972 1989	FGLK29
EULKI29	The Lime Storage Bins include two lime storage bins, one for hot lime storage, one for purchased lime storage. A common baghouse dust collector serves the two lime storage bins.	1972	FGLK29
EUS29	The Recausticizing System has one emission unit: Lime Slaker (EUS29). In the slaker, calcium oxide from the Lime Kiln System (FGLK29) reacts with green liquor from the Smelt Dissolving tank (EUST15) to produce white liquor and lime mud. The reaction is carried out in the slaker and causticizers. The mixture is separated in two white liquor clarifiers. White liquor is used in the digesters as a cooking chemical. Lime mud is washed, dewatered and oxidized in the Lime Kiln System to regenerate calcium oxide for the slaking process. Emissions from the slaker are controlled by a wet scrubber.	1972 1984	NA

Emission Unit ID	Emission Unit Description (Including Process Equipment & Control Device(s))	Installation Date/ Modification Date	Flexible Group ID
EUPB	Maintenance Paint Spray Booth. Emissions are controlled by dry exhaust filters.	1994	NA
EULKSIRICE	The Lime Kiln Emergency Drive Motor is a propane fueled spark ignition engine used to power the lime kiln drive in emergency situations. The engine is 4 stroke lean burn rated at 25 HP.	1989	FGSIRICE
EUEOCSIRICE	The EOC Back-up Generator is a propane fueled spark ignition engine used to provide emergency power to the Administrative Building. The engine is 4 stroke lean burn rated at 200 HP.	2001	FGSIRICE
EUE1CIRICE	The E1 Emergency Lift Pump is a diesel powered compression ignition engine pump used for emergency purposes the E1 area. The engine is 4 stroke lean burn rated at 100 HP.	1996	FGCIRICE
EUFW1CIRICE	The Water Treatment Building Emergency Fire Water Pump is a diesel powered compression ignition engine pump used to supply emergency fire water to the water treatment areas. The engine is 4 stroke lean burn rated at 160 HP.	1967	FGCIRICE
EUFW2CIRICE	The Administrative Building Emergency Fire Water Pump is a diesel powered compression ignition engine pump used to supply emergency fire water to the Administration areas. The engine is 4 stroke lean burn rated at 200 HP.	1992	FGCIRICE
EUTTGCIRICE	The Turbine Turning Gear Back-up Generator is a diesel powered compression ignition engine used to supply emergency power to turbine generator area. The engine is 4 stroke lean burn rated at 40 HP.	1972	FGCIRICE

EU7B17 - #7 Boiler
EMISSION UNIT CONDITIONS

DESCRIPTION

The #7 Boiler (EU7B17) is a Riley boiler rated for 150,000 pounds of steam per hour (approximately 154 million BTU per hour heat input) that provides steam for mill processes. The #7 Boiler burns natural gas and fuel oil.

Flexible Group ID: FGBMACTB07B08 has additional requirements for EU7B17.~~NA~~

POLLUTION CONTROL EQUIPMENT

NA

I. EMISSION LIMIT(S)

Pollutant	Limit	Time Period/ Operating Scenario	Equipment	Monitoring/ Testing Method	Underlying Applicable Requirements
NA	NA	NA	NA	NA	NA

II. MATERIAL LIMIT(S)

Material	Limit	Time Period/ Operating Scenario	Equipment	Monitoring/ Testing Method	Underlying Applicable Requirements
1. Fuel Oil – Sulfur content	1.5 percent by weight, calculated on the basis of 18,000 BTU /lb[1]	NA	EU7B17	SC VI.1	**R 336.1401**

III. PROCESS/OPERATIONAL RESTRICTION(S)

1. Reference FGBMACTB07B08 for Process/Operational restrictions.~~NA~~

IV. DESIGN/EQUIPMENT PARAMETER(S)

NA

V. TESTING/SAMPLING

Records shall be maintained on file for a period of five years. **(R 336.1213(3)(b)(ii))**

1. Reference FGBMACTB07B08 for Testing/Sampling requirements. ~~NA~~

See Appendix 5

VI. MONITORING/RECORDKEEPING

Records shall be maintained on file for a period of five years. **(R 336.1213(3)(b)(ii))**

1. The permittee shall obtain and keep records of the sulfur and BTU content of the fuel oil burned in #7 Boiler. For each shipment received, the permittee shall obtain from the supplier a laboratory analysis of the fuel oil sulfur and BTU content. The permittee shall also record the date received, fuel oil grade, source of fuel oil and supplier, and gallons received. The determination of sulfur content shall be carried out in accordance with one of the following procedures: ASTM Method D129-64 or ASTM Method 1552-83 or ASTM Method 2622-87 or ASTM Method 1266-87 or an alternative method approved by the AQD District Supervisor. **(R 336.1213(3))**

~~1.~~2. Reference FGBMACTB07B08 for Monitoring/Recordkeeping requirements.

See Appendix 7

VII. REPORTING

1. Prompt reporting of deviations pursuant to General Conditions 21 and 22 of Part A. **(R 336.1213(3)(c)(ii))**

2. Semiannual reporting of monitoring and deviations pursuant to General Condition 23 of Part A. The report shall be postmarked or received by the appropriate AQD District Office by March 15 for reporting period July 1 to December 31 and September 15 for reporting period January 1 to June 30. **(R 336.1213(3)(c)(i))**

3. ~~3.~~ Annual certification of compliance pursuant to General Conditions 19 and 20 of Part A. The report shall be postmarked or received by the appropriate AQD District Office by March 15 for the previous calendar year. **(R 336.1213(4)(c))**

4. Reference FGBMACTB07B08 for Reporting requirements.

See Appendix 8

VIII. STACK/VENT RESTRICTION(S)

The exhaust gases from the stacks listed in the table below shall be discharged unobstructed vertically upwards to the ambient air unless otherwise noted:

Stack & Vent ID	Maximum Exhaust Dimensions (inches)	Minimum Height Above Ground (feet)	Underlying Applicable Requirements
1. SV17031S	78[1]	96[1]	**R 336.1901**

IX. OTHER REQUIREMENT(S)

~~1. The permittee shall comply with the provisions of the National Emission Standards for Hazardous Air Pollutants, as specified in 40 CFR, Part 63, Subpart A and Subpart DDDDD, as they apply to EU7B17, by the initial compliance date.~~ ~~**(40 CFR Part 63, Subparts A and DDDDD)**~~**NA**

Footnotes:
[1]This condition is state-only enforceable and was established pursuant to Rule 201(1)(b).
[2]This condition is federally enforceable and was established pursuant to Rule 201(1)(a).

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EU8B13 - #8 Boiler
EMISSION UNIT CONDITIONS

DESCRIPTION

The #8 Boiler (EU8B13) is a Combustion Engineering boiler rated for 450,000 pounds of steam per hour (approximately 594 million BTU per hour heat input) that provides steam for mill processes and steam turbine-generator sets for producing electricity. A Flue Gas Recirculation system was installed on the #~~ ~~8 Boiler. The #8 Boiler burns natural gas and fuel oil.

Flexible Group ID: FGBMACTB07B08 has additional requirements for EU8B13~~NA~~

POLLUTION CONTROL EQUIPMENT

Flue Gas Recirculation System.

I. EMISSION LIMIT(S)

Pollutant	Limit	Time Period/ Operating Scenario	Equipment	Monitoring/ Testing Method	Underlying Applicable Requirements
1. NOx*	0.20 lbs/MMBtu[1]	Ozone Season	EU8B13 when firing natural gas	SC VI.2	**R 336.1801(13) R 336.1801(1)(f)**
2. NOx*	0.40 lbs/MMBtu[1]	Ozone Season	EU8B13 when firing residual oil	SC VI.2	**R 336.1801(13) R 336.1801(1)(f)**
3. NOx	0.35 lbs/MMBTU[2]	30-day rolling average	EU8B13 when firing natural gas and/or residual oil	SC VI.5	**40 CFR 52.1183(i)**

* The permittee shall comply with the appropriate NOx emission limitations averaged over the ozone control season, which is May 1 through September 30, when #8 Boiler is subject to the ozone control season requirements. Note that #8 Boiler is not always run continuously and can qualify as a Peaking Unit per R 336.1801(1)(g) and R 336.1801(14)(c). The #8 Boiler is exempt from the ozone control season requirements following years it qualifies as a Peaking Unit.[1]

II. MATERIAL LIMIT(S)

Material	Limit	Time Period/ Operating Scenario	Equipment	Monitoring/ Testing Method	Underlying Applicable Requirements
1. Fuel Oil – Sulfur content	Average concentration of 1.0 percent by weight, calculated on the basis of 18,000 BTU /lb[2]	NA	EU8B13	SC VI.1	**R 336.1201 R 336.1401**

III. PROCESS/OPERATIONAL RESTRICTION(S)

1. Reference FGBMACTB07B08 for Process/Operational Restrictions.
~~NA~~

IV. DESIGN/EQUIPMENT PARAMETER(S)

NA

V. TESTING/SAMPLING

Records shall be maintained on file for a period of five years. **(R 336.1213(3)(b)(ii))**

NA

See Appendix 5

VI. MONITORING/RECORDKEEPING

Records shall be maintained on file for a period of five years. **(R 336.1213(3)(b)(ii))**

1. The permittee shall obtain and keep records of the sulfur and BTU content of the fuel oil burned in #8 Boiler. The permittee shall obtain from the supplier a laboratory analysis of the fuel oil sulfur and BTU content for each bulk shipment. The permittee shall also record the date received, fuel oil grade, source of fuel oil and supplier, and gallons received. The determination of sulfur content shall be carried out in accordance with one of the following procedures: ASTM Method D129-64 or ASTM Method 1552-83 or ASTM Method 2622-87 or ASTM Method 1266-87 or an alternative method approved by the AQD District Supervisor. **(R 336.1213(3))**

2. The permittee shall measure NOx emissions using a NOx CEMS during the ozone control period in accordance with the provisions of R 336.1801(11) when subject to the ozone control period as described in Part I above.[1] **(R 336.1801(8))**

3. The permittee shall use the procedures set forth in 40 CFR Part 60, Appendix A and B, and comply with the Quality Assurance procedures in Appendix F, or 40 CFR Part 75 and associated appendices as applicable and acceptable to the AQD.[1] **(R 336.1801(11))**

4. The permittee shall keep records to demonstrate that the sum of the mass emissions during the ozone control period divided by the sum of the heat input during the ozone control period is less than or equal to the emission limitations specified in Table 81 or R 336.1801.[1] **(R 336.1801(5)(a))**

5. The reference test method for assessing compliance with the NOx limit in SC I.3 shall be a continuous emission monitoring system operated in conformance with 40 CFR Part 60, Appendix F. A new 30-day average shall be computed at the end of each calendar day in which the boiler operated, based on the following procedure: first, sum the total pounds of NOx emitted from the unit during the operating day and the previous twenty-nine operating days, second sum the total heat input to the unit in MMBTU during the same period, and third, divide the total number of pounds of NOx emitted by the total heat input during the thirty operating days. **(40 CFR 52.1183(i))**

6. The owner/operator shall maintain the following records regarding Boiler 8 for at least five years **(40 CFR 52.1183(i)):**
   a. All CEMS data, including the date, place, and time of sampling or measurement; parameters sampled or measured; and results.
   b. All stack test results.
   c. Daily records of fuel usage, heat input, and data used to determine heat content.
   d. Records of quality assurance and quality control activities for emissions measuring systems including, but not limited to, any records required by 40 CFR Part 60, Appendix F, Procedure 1.
   e. Records of all major maintenance activities conducted on emission units, air pollution control equipment, and CEMS.
   f. Any other records identified in 40 CFR 60.49b(g) or 40 CFR Part 60, Appendix F, Procedure 1.

~~f.~~ 7. Reference FGBMACTB07B08 for Monitoring/Recordkeeping requirements.

See Appendix 7

VII. REPORTING

1. Prompt reporting of deviations pursuant to General Conditions 21 and 22 of Part A. **(R 336.1213(3)(c)(ii))**

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2. Semiannual reporting of monitoring and deviations pursuant to General Condition 23 of Part A. The report shall be postmarked or received by the appropriate AQD District Office by March 15 for reporting period July 1 to December 31 and September 15 for reporting period January 1 to June 30. **(R 336.1213(3)(c)(i))**

3. Annual certification of compliance pursuant to General Conditions 19 and 20 of Part A. The report shall be postmarked or received by the appropriate AQD District Office by March 15 for the previous calendar year. **(R 336.1213(4)(c))**

4. The permittee shall submit a summary report to the AQD within 60 days after the end of each ozone control season. The report shall contain the information specified in R 336.1801.[1] **(R 336.1801)**

5. All reports under this section shall be submitted to the Chief, Air Enforcement and Compliance Assurance Branch, U.S. Environmental Protection Agency, Region 5, Mail Code AE–17J, 77 W. Jackson Blvd., Chicago, IL 60604–3590. **(40 CFR 52.1183(i))**
    a. Owner/operator of Boiler 8 shall submit quarterly excess emissions reports for the limit in paragraph (i)(1) no later than the 30th day following the end of each calendar quarter. Excess emissions ~~means~~mean emissions that exceed the emissions limit specified in paragraph (i)(1) of this section. The reports shall include the magnitude, date(s), and duration of each period of excess emissions, specific identification of each period of excess emissions that occurs during startups, shutdowns, and malfunctions of the unit, the nature and cause of any malfunction (if known), and the corrective action taken or preventative measures adopted.
    b. Owner/operator of Boiler 8 shall submit quarterly CEMS performance reports, to include dates and duration of each period during which the CEMS was inoperative (except for zero and span adjustments and calibration checks or when Boiler 8 is not operating), reason(s) why the CEMS was inoperative and steps taken to prevent recurrence, and any CEMS repairs or adjustments.
    c. Owner/operator of Boiler 8 shall also submit results of any CEMS performance tests required by 40 CFR Part 60, Appendix F, Procedure 1 (Relative Accuracy Test Audits, Relative Accuracy Audits, and Cylinder Gas Audits).
    d. When no excess emissions have occurred or the CEMS has not been inoperative, repaired, or adjusted during the reporting period, such information shall be stated in the quarterly reports required by paragraph VII.5 of this section.

~~d.~~ 6. Reference FGBMACTB07B08 for Reporting requirements.

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See Appendix 8

VIII. STACK/VENT RESTRICTION(S)

The exhaust gases from the stacks listed in the table below shall be discharged unobstructed vertically upwards to the ambient air unless otherwise noted:

Stack & Vent ID	Maximum Exhaust Dimensions (inches)	Minimum Height Above Ground (feet)	Underlying Applicable Requirements
1. SV13024S	84[2]	161[2]	**R 336.1901 40 CFR 52.1183(i)**

IX. OTHER REQUIREMENT(S)

~~1. The permittee shall comply with the provisions of the National Emission Standards for Hazardous Air Pollutants, as specified in 40 CFR Part 63, Subpart A and Subpart DDDDD, as they apply to EU8B13, by the initial compliance date. **(40 CFR Part 63, Subparts A and DDDDD)**~~

Footnotes:
[1] This condition is state only enforceable and was established pursuant to Rule 201(1)(b).

[2] This condition is federally enforceable and was established pursuant to Rule 201(1)(a).

~~EU11B68 - #11 Boiler~~
~~EMISSION UNIT CONDITIONS~~

Commented [RW1]: These requirements are now in FG11BFA

~~DESCRIPTION~~

~~The #11 Boiler (EU11B68), installed 1981, modified 1986, is an ABB Combustion Engineering combination fuel boiler rated for 750,000 pounds of steam per hour (approximately 1040 million BTU per hour heat input) that provides steam for mill processes and steam turbine-generators for producing electricity. The #11 Boiler burns natural gas and solid fuels, which include pulverized coal, wood residue, wastewater treatment plant residuals, Tire-Derived Fuel (TDF), and non-hazardous secondary material (NHSM) pellets.~~

~~Flexible Group ID:~~ ~~NA~~

~~POLLUTION CONTROL EQUIPMENT~~

~~Over-fired Air System (OFA) modified 2012, Multiclone and Electrostatic Precipitator on EU11B68.~~

~~I. EMISSION LIMIT(S)~~

~~Pollutant~~	~~Limit~~	~~Time Period/ Operating Scenario~~	~~Equipment~~	~~Monitoring/ Testing Method~~	~~Underlying Applicable Requirements~~
~~1. CO~~	~~0.50 lb / MMBTU heat input~~[2]	~~When firing solid fuels~~	~~EU11B68~~	~~SC V.1~~	~~**R 336.1201 40 CFR 52.21**~~
~~2. NOx~~	~~0.70 lb / MMBTU heat input~~[2]	~~30-day rolling average, when firing solid fuels~~	~~EU11B68~~	~~SC VI.2~~	~~**R 336.1201 40 CFR Part 60 Subpart Db 40 CFR 52.21**~~
~~3. NOx*~~	~~Limits specified in Table 81 of Rule 801~~[1]	~~Ozone Season~~	~~EU11B68~~	~~SC VI.3~~	~~**R 336.1801**~~
~~4. PM~~	~~0.06 lb / MMBTU heat input~~[2]	~~When firing solid fuels~~	~~EU11B68~~	~~SC V.1~~	~~**R 336.1201 40 CFR 52.21 40 CFR Part 60 Subpart D**~~
~~5.~~ ~~SO_2~~	~~1.2 lbs /MMBTU heat input~~[2]	~~10-day rolling average, when firing solid fuels~~	~~EU11B68~~	~~SC VI.8~~	~~**R 336.1201 40 CFR Part 60 Subpart D 40 CFR 52.21**~~
~~6. Mercury~~	~~7.1 lb~~[2]	~~24-hour period, when firing wastewater treatment plant residuals~~	~~EU11B68~~	~~SC VI.22~~	~~**40 CFR 61.52(b)**~~
~~* During years when the boiler meets the definition of a fossil fuel fired emission unit per the definition in R 336.1801(1)(b).~~					

~~II. MATERIAL LIMIT(S)~~

~~Material~~	~~Limit~~	~~Time Period/ Operating Scenario~~	~~Equipment~~	~~Monitoring/ Testing Method~~	~~Underlying Applicable Requirements~~
~~1. Boiler Fuel~~	~~At least 45% by weight of the fuel fired during normal operation is wood residue and/or wastewater treatment plant residuals measured as a percentage of wet weight of wood residue and/or wastewater treatment plant residuals per the total wet weight of all solid fuels²~~	~~10-day rolling average~~	~~EU11B68~~	~~SC VI.5~~	~~**R 336.1201 40 CFR 52.21**~~
~~2. Coal – Sulfur Content~~	~~Average of 1.0 percent by weight, calculated on the basis of 12,000 BTU /lb²~~	~~10-day rolling average~~	~~EU11B68~~	~~SC VI.6~~	~~**R 336.1201 40 CFR Part 60 Subpart D 40 CFR 52.21**~~
~~3. TDF~~	~~90 tons per day²~~	~~Monthly average~~	~~EU11B68~~	~~SC VI.7~~	~~**R 336.1205(1)(a) R 336.1205(3)**~~
~~4. TDF~~	~~32,220 tons per year²~~	~~12-month rolling average~~	~~EU11B68~~	~~SC VI.7~~	~~**R 336.1205(1)(a) R 336.1205(3)**~~
~~5. Engineered non-waste fuel pellets~~	~~88,700 tons per year²~~	~~12-month rolling time period as determined at the end of each calendar month~~	~~EU11B68~~	~~SC VI.12~~	~~**R 336.1205(1)(a) R 336.1205(3) R 336.1225**~~
~~6. Engineered non-waste fuel pellets - chlorine (or total halogen content *~~	~~15,000 ppm ²~~	~~By weight, as received~~	~~EU11B68~~	~~SC VI.11~~	~~**R 336.1225**~~
~~7. Engineered non-waste fuel pellets~~	~~20% heat input~~	~~12-month rolling time period as determined at the end of each calendar month~~	~~EU11B68~~	~~SC VI.13~~	~~**R 336.1205(1)(a) R 336.1205(3) R 336.1225**~~

~~III. PROCESS/OPERATIONAL RESTRICTION(S)~~

~~1. The permittee shall not use solid fuel to start up EU11B68. ² **(R 336.1201, 40 CFR 52.21, R 336.1331)**~~

2. ~~The permittee shall not operate EU11B68 unless the multiclone and electrostatic precipitator are operating properly.[2] **(R 336.1201, 40 CFR 52.21, R 336.1331, R 336.1910)**~~

3. ~~Solid fuels feed to EU11B68 shall be reduced immediately, consistent with safe operating procedures, upon operating the electrostatic precipitator as single chambered unit during maintenance. Solid fuels input feed to EU11B68 may be increased when the electrostatic precipitator is back on line and functioning properly.[2] **(R 336.1201, R 336.1331, R 336.1910)**~~

~~IV. DESIGN/EQUIPMENT PARAMETER(S)~~

~~NA~~

~~V. TESTING/SAMPLING~~

~~Records shall be maintained on file for a period of five years. **(R 336.1213(3)(b)(ii))**~~

1. ~~The permittee shall verify carbon monoxide and PM emission rates from EU11B68 by testing at owner's expense, in accordance with Department requirements. Once within five years of permit issuance, and once every five year period thereafter, the permittee shall verify the emission rates from the EU11B68 by testing, to determine compliance with the emission limits specified in Section I. 40 CFR Part 63, Subpart DDDDD emissions testing for these pollutants can be used to satisfy this requirement. The permittee shall submit a complete test protocol to the AQD for approval at least 30 days prior to the anticipated test date. The permittee shall notify the AQD no less than 7 days prior to the anticipate test date. The permittee shall submit two complete test reports of the test results to the AQD, one to the Technical Program Unit and one to the district office, within 60 days following the last date of the test.[2] **(R 336.1201(3), R 336.1213(3))**~~

2. ~~Performance tests shall be conducted according to procedures and test methods specified or approved by the AQD. Not less than 30 days prior to testing, a testing plan shall be submitted to the AQD for review. **(R 336.2001, R 336.2003)**~~

3. ~~Verification of the supplier certificate of analysis for engineered non-waste fuel pellets may be required, by sampling at owner's expense, in accordance with Department requirements.[2] **(R 336.2001, R 336.2003)**~~

~~**See Appendix 5**~~

~~VI. MONITORING/RECORDKEEPING~~

~~Records shall be maintained on file for a period of five years. **(R 336.1213(3)(b)(ii))**~~

1. ~~The permittee shall monitor and record the opacity and oxygen from EU11B68 on a continuous basis in a manner and with instrumentation acceptable to the AQD.[2] **(R 336.1201, R 336.2101, 40 CFR Part 60, Subpart D)**~~

2. ~~The permittee shall monitor and record the nitrogen oxides emission from EU11B68 on a continuous basis in a manner and with instrumentation acceptable to the AQD.[2] **(R 336.1201, 40 CFR 52.21, 40 CFR Part 60, Subpart D)**~~

3. ~~The permittee shall measure NOx emissions using a NOx CEMS during the ozone control period in accordance with the provisions of R 336.1801(11) when subject to the ozone control period as described in Part I above.[1] **(R 336.1801(8))**~~

4. ~~The permittee shall keep records of the quantities of natural gas and solid fuels burned in EU11B68. **(R 336.1213(3))**~~

5. ~~The permittee shall monitor and record the percentage of wood residue fuel and/or wastewater treatment plant residuals fired in EU11B68 to determine compliance with the limitation specified under Material Usage and Emission Limits above. **(R 336.1213(3))**~~

6. ~~The permittee shall obtain and keep records of the sulfur, ash, and BTU content of the coal burned in EU11B68. The permittee shall obtain from the supplier a laboratory analysis of the coal ash, sulfur, and BTU content for~~

each bulk shipment. The permittee shall also record the date received, source of coal and shipper, and tons received. At least once per calendar year, the permittee shall have an analysis performed of the coal sulfur, ash, and BTU content. This analysis shall be independent of the analyses received from the coal supplier with each shipment. The determination of coal sulfur content shall be carried out in accordance with one of the following procedures: ASTM Method 3177-75 or ASTM Method D4239 or an alternative method approved by the AQD District Supervisor.[2] **(R 336.1201, R 336.1213(3),40 CFR Part 60, Subpart D)**

7. The permittee shall obtain and keep records of sulfur, ash, and Btu content of the TDF burned in EU11B68. A minimum of twice per year the permittee shall obtain (independently or from the supplier) a laboratory analysis of the ash, sulfur, and BTU content. The permittee shall also record the date received, source, shipper and tons received. At least once per year, the permittee shall have an analysis performed of the TDF for sulfur, ash, arsenic, cadmium, total chromium, lead, manganese, mercury, nickel, zinc and Btu content. The TDF analysis shall be carried out in accordance by an approved ASTM Method or an alternative method approved by the AQD District Supervisor. Records shall be kept on file for a period of at least five years and made available to the Department upon request.[2] **(R 336.1201, R 336.1205)**

8. Monitoring and recording of emissions and operating information from EU11B68 is required to comply with federal Standards of Performance for New Stationary Sources as specified in 40 CFR Part 60, Subparts A and D.[2] **(R 336.1201, 40 CFR Part 60, Subparts A and D)**

9. The permittee shall comply with applicable oxides of nitrogen monitoring and recordkeeping provisions as specified in Rule 801, during years when the boiler meets the definition of a fossil fuel fired emission unit, per the definition in R 336.1801(1)(b).[1] **(R 336.1801)**

10. The permittee shall calculate and keep records of PM_{10}, $PM_{2.5}$, SO_2, NOx, CO, H_2SO_4, and CO_2e emission rates from EU11B68, in tons per year on a calendar year basis. The recordkeeping period shall begin on the first day of the month during which the EU11B68, with OFA installed, commences operation and shall continue for 5 years. The calculations and records shall be kept in a format acceptable to the Department. The permittee shall keep all records on file and make them available to the Department upon request.[2] **(R 336.1205, R 336.1901, R 336.2802(4)(d), R 336.2818, 40 CFR 52.21)**

11. The permittee shall obtain and keep records of the chorine (or total halogens) and Btu content of the engineered non-waste fuel pellets burned in EU11B68. When burning engineered non-waste fuel pellets in EU11B68, the permittee shall obtain (independently or from the supplier) a monthly laboratory analysis of the chlorine and BTU content. The permittee shall also record the date received, source, shipper and tons of engineered non-waste fuel pellets received. The permittee shall monitor and record the supplier analysis for engineered non-waste fuel pellets received. Analysis shall contain the sample date, results of the sampling analysis performed, and the analytical methods used.[2] **(R 336.1205(1)(a), R 336.1205(3), R 336.1225)**

12. The permittee shall monitor and record, the tons of engineered non-waste fuel pellets used as fuel for EU11B68, on a monthly and 12-month rolling time period basis. The permittee shall use a monitoring and recordkeeping method acceptable to the AQD District Supervisor and make all records available to the Department upon request.[2] **(R 336.1205(1)(a), R 336.1205 (3), R 336.1225)**

13. The permittee shall monitor and record the percent of engineered non-waste fuel pellets, on a heat input basis, used as fuel for EU11B68, on a monthly and 12-month rolling time period basis. The permittee shall use a monitoring and recordkeeping method acceptable to the AQD District Supervisor and make all records available to the Department upon request.[2] **(R 336.1205(1)(a), R 336.1205 (3), R 336.1225)**

14. The permittee shall keep and maintain all sampling and/or testing results for the engineered non-waste fuel pellets used as fuel for EU11B68, for a period of five years. The permittee shall use a monitoring and recordkeeping method acceptable to the AQD District Supervisor and make all records available to the Department upon request.[2] **(R 336.1205(1)(a), R 336.1205(3), R 336.1225)**

15. The permittee shall utilize COM-recorded opacity as an indicator of the proper operation of the electrostatic precipitator. The indicator range of opacity defining proper function of the ESP is 0 to 20%. Six-minute average values shall be based on 24 or more equally spaced instantaneous opacity measurements per six-minute period.

~~The COM shall be calibrated in accordance with 40 CFR, Part 60, Subpart A and Appendix B of 40 CFR Part 60.~~ ~~**(40 CFR 64.6(c)(1)(i and ii))**~~

~~16. The opacity monitor shall continuously monitor opacity. The monitor shall be calibrated annually.~~ ~~**(40 CFR 64.6(c)(1)(iii))**~~

~~17. An excursion is a departure from the indicator range of 0 to 20% opacity based on a 6 minute averaging time, except for one six-minute average between 20 and 27% per hour as allowed per general condition A.11.~~ ~~**(40 CFR 64.6(c)(2))**~~

~~18. Upon detecting an excursion or exceedance, the owner or operator shall restore operation of the pollutant-specific emissions unit (including the control device and associated capture system) to its normal or usual manner of operation as expeditiously as practicable in accordance with good air pollution control practices for minimizing emissions. The response shall include minimizing the period of any startup, shutdown or malfunction and taking any necessary corrective actions to restore normal operation and prevent the likely recurrence of the cause of an excursion or exceedance (other than those caused by excused startup or shutdown conditions).~~ ~~**(40 CFR 64.7(d))**~~

~~19. Except for, as applicable, monitoring malfunctions, associated repairs, and required quality assurance or control activities (including, as applicable, calibration checks and required zero and span adjustments), the owner or operator shall conduct all monitoring in continuous operation (or shall collect data at all required intervals) at all times that the pollutant-specific emissions unit is operating. Data recorded during monitoring malfunctions, associated repairs, and required quality assurance or control activities shall not be used for purposes of this part, including data averages and calculations or fulfilling a minimum data availability requirement, if applicable. The owner or operator shall use all the data collected during all other periods in assessing the operation of the control device and associated control system. A monitoring malfunction is any sudden, infrequent, not reasonably preventable failure of the monitoring to provide valid data. Monitoring failures that are caused in part by poor maintenance or careless operation are not malfunctions.~~ ~~**(40 CFR 64.6(c)(3), 64.7(c))**~~

~~20. The permittee shall properly maintain the monitoring system, including keeping necessary parts for routine repair of the monitoring equipment.~~ ~~**(40 CFR 64.7(b))**~~

~~21. The permittee shall maintain records of monitoring data, monitor performance data, corrective actions taken, any written quality improvement plan and any activities undertaken to implement a quality improvement plan, and other information such as data used to document the adequacy of monitoring, or records of monitoring maintenance or corrective actions.~~ ~~**(40 CFR 64.9(b)(1))**~~

~~22. The permittee shall comply with the sludge mercury monitoring requirements of 40 CFR 61.54 and 40 CFR 61.55 or other approved method.~~ ~~**(40 CFR 61.54, 40 CFR 61.55)**~~

~~**See Appendix 7**~~

~~VII. REPORTING~~

~~1. Prompt reporting of deviations pursuant to General Conditions 21 and 22 of Part A.~~ ~~**(R 336.1213(3)(c)(ii))**~~

~~2. Semiannual reporting of monitoring and deviations pursuant to General Condition 23 of Part A. The report shall be postmarked or received by the appropriate AQD District Office by March 15 for reporting period July 1 to December 31 and September 15 for reporting period January 1 to June 30.~~ ~~**(R 336.1213(3)(c)(i))**~~

~~3. Annual certification of compliance pursuant to General Conditions 19 and 20 of Part A. The report shall be postmarked or received by the appropriate AQD District Office by March 15 for the previous calendar year.~~ ~~**(R 336.1213(4)(c))**~~

~~4. Quarterly reporting of the continuous emission monitoring for opacity and nitrogen oxides emissions from EU11B68.~~ ~~**(R 336.1213(3), 40 CFR Part 60, Subpart D)**~~

5. ~~The permittee shall comply with applicable oxides of nitrogen reporting and compliance certification requirements as specified in Rule 801, during years when the boiler meets the definition of a fossil fuel fired emission unit, per the definition in R 336.1801(1)(b).[1] **(R 336.1801)**~~

6. ~~The permittee shall calculate and keep records of the annual emissions of PM_{10}, $PM_{2.5}$, SO_2, NO_X, H_2SO_4, CO, and CO_2e from EU11B68 in tons per year on a calendar year basis, as described in Appendix 9. Calculations and recordkeeping shall begin the month in which the operation of EU11B68 resumes with OFA installed and shall continue for 5 years. The permittee shall submit this information to the AQD Permit Section Supervisor within 60 days following the end of each reporting year if both the following occur:~~
   a. ~~The calendar year actual emissions of PM_{10}, $PM_{2.5}$, SO_2, NO_X, H_2SO_4, CO, and CO_2e exceed the baseline actual emissions (BAE) by a significant amount as defined in R 336.1119(e), and~~
   b. ~~The calendar year actual emissions differ from the pre-construction projection. The pre-construction projection is the sum of the projected actual emissions from each existing emission unit included in the Actual-to-Projected-Actual Applicability Test used for EU11B68.~~

   ~~The report shall contain the name, address, and telephone number of the facility; the annual emissions as calculated pursuant to SC VI.9 and Appendix 9b; and any other information the owner or operator wishes to include (i.e., an explanation why emissions differ from the pre-construction projection). **(R 336.2818, 40 CFR 52.21 (r)(6)(c)(iii))**~~

7. ~~Each semiannual report of monitoring and deviations as specified under the CAM requirements shall include summary information on monitor downtime. If there were no periods of monitor downtime in the reporting period, then this report shall include a statement that there were no periods of monitor downtime.~~
   ~~**(40 CFR 64.9(a)(2)(ii))**~~

8. ~~Each semiannual report of monitoring deviations as specified under the CAM requirements shall include summary information on the number, duration, and cause of CAM exceedances/excursions in the reporting period; and the corrective actions taken in response. If there were no excursions/exceedances in the reporting period, then this report shall include a statement that there were no excursions/exceedances.~~
   ~~**(40 CFR 64.9(a)(2)(i))**~~

9. ~~The permittee shall complete two complete test protocols to the AQD, one to the Technical Programs Unit Supervisor and one to the District Supervisor for approval at least 30 days prior to the anticipated test. The protocol shall describe the test method(s) and the maximum routine operating conditions, including targets for key operational parameters associated with air pollution control equipment to be monitored and recorded during testing. **(R 336.2001(3))**~~

10. ~~The permittee shall notify the AQD Technical Programs Unit Supervisor and the District Supervisor no less than 7 days prior to the anticipated test date. **(R 336.2001(4))**~~

11. ~~The permittee shall submit two complete test reports to the AQD, one to the Technical Programs Unit Supervisor and one to the District Supervisor, within 60 days following the last date of the test.~~
    ~~**(R 336.2001(5))**~~

~~**See Appendix 8**~~

~~VIII. STACK/VENT RESTRICTION(S)~~

~~The exhaust gases from the stacks listed in the table below shall be discharged unobstructed vertically upwards to the ambient air unless otherwise noted:~~

~~**Stack & Vent ID**~~	~~**Maximum Exhaust Dimensions (inches)**~~	~~**Minimum Height Above Ground (feet)**~~	~~**Underlying Applicable Requirements**~~
~~1. SV68033S~~	~~132[2]~~	~~330[2]~~	~~**R 336.1225**~~ ~~**R 336.2803**~~ ~~**R 336.2804**~~ ~~**40 CFR 52.21 (c)(d)**~~

~~IX. OTHER REQUIREMENT(S)~~

~~1. The air cleaning devices shall be maintained and operated in a satisfactory manner and in accordance with the Michigan Air Pollution Control Rules and existing law. The permittee shall carry out an Inspection and Maintenance Program, including keeping of records of inspections done, problems found, repairs done, and/or corrective action taken.[1] **(R 336.1301, R 336.1331, R 336.1910, R 336.1213(3))**~~

~~2. Permittee shall comply with all applicable requirements of 40 CFR Part 64. **(40 CFR Part 64)**~~

~~3. The permittee shall comply with the provisions of the National Emission Standards for Hazardous Air Pollutants, as specified in 40 CFR Part 63, Subpart A and Subpart DDDDD, as they apply to EU11B68, by the initial compliance date. **(40 CFR Part 63, Subparts A and DDDDD)**~~

~~4. If the permittee identifies a failure to achieve compliance with an emission limitation or standard for which the approved monitoring did not provide an indication of an excursion or exceedance while providing valid data, or the results of compliance or performance testing document a need to modify the existing indicator ranges or designated conditions, the permittee shall promptly notify the AQD and if necessary, submit a proposed modification of the CAM Plan to address the necessary monitoring changes. Such a modification may include but is not limited to, reestablishing indicator ranges or designated conditions, modifying the frequency of conducting monitoring and collecting data, or the monitoring of additional parameters. **(40 CFR 64.7(e))**~~

~~**Footnotes:**~~
~~[1] This condition is state only enforceable and was established pursuant to Rule 201(1)(b).~~
~~[2] This condition is federally enforceable and was established pursuant to Rule 201(1)(a).~~

EUCS14 – Chip Thickness Screening
EMISSION UNIT CONDITIONS

DESCRIPTION

The Chip Thickness Screening System (EUCS14) includes #1 Chip Reclaim Surge Bin, #2 Chip Reclaim Surge Bin, Air Density Separator #1A, Air Density Separator #1B, Air Density Separator #2A, Air Density Separator #2B.

Flexible Group ID: NA

POLLUTION CONTROL EQUIPMENT

#1 Chip Reclaim Cyclone, #2 Chip Reclaim Cyclone, Air Density Separator Cyclone #1A, Air Density Separator Cyclone #1B, Air Density Separator Cyclone #2A, Air Density Separator Cyclone #2B

I. EMISSION LIMIT(S)

Pollutant	Limit	Time Period/ Operating Scenario	Equipment	Monitoring/ Testing Method	Underlying Applicable Requirements
1. PM*	0.0075 gr/dscf[2]	Test Protocol	EUCS14	SC V.1	**R 336.1201 R 336.1331**
2. PM	5.58 pph[2]	Test Protocol	EUCS14	SC V.1	**R 336.1201 R 336.1331**
3. PM-10*	0.0044 gr/dscf [2]	Test Protocol	EUCS14	SC V.2	**R 336.1201 R 336.1331**
4. PM-10	3.29 pph[2]	Test Protocol	EUCS14	SC V.2	**R 336.1201 R 336.1331**

* The PM or PM-10 concentrations shall be determined as the weighted average, based on the total average exhaust flowrate at dry standard conditions, of the PM or PM-10 concentrations for each of the six cyclone dust collectors used in the process. The concentration and flow rate for each cyclone are average measured values determined in accordance with an approved stack testing methodology.

II. MATERIAL LIMIT(S)

Material	Limit	Time Period/ Operating Scenario	Equipment	Monitoring/ Testing Method	Underlying Applicable Requirements
NA	NA	NA	NA	NA	NA

III. PROCESS/OPERATIONAL RESTRICTION(S)

1. The permittee shall not operate EUCS14 unless the cyclone dust collectors are operating properly.[2] **(R 336.1201, R 336.1910)**

IV. DESIGN/EQUIPMENT PARAMETER(S)

NA

V. TESTING/SAMPLING

Records shall be maintained on file for a period of five years. **(R 336.1213(3)(b)(ii))**

1. The permittee shall verify PM emission rates from EUCS14 by testing at owner's expense, in accordance with Department requirements. Once within three years of permit issuance, the permittee shall verify the emission

rates from the EUCS14 by testing, to determine compliance with the emission limits specified in SC I. The permittee shall submit a complete test protocol to the AQD for approval at least 30 days prior to the anticipated test date. The permittee shall notify the AQD no less than 7 days prior to the anticipate test date. The permittee shall submit two complete test reports of the test results to the AQD, one to the Technical Program Unit and one to the district office, within 60 days following the last date of the test. **(R 336.1213(3))**

2. Performance tests shall be conducted according to procedures and test methods specified or approved by the AQD. Not less than 30 days prior to testing, a testing plan shall be submitted to the AQD for review. [2] **(R 336.2001, R 336.2003)**

See Appendix 5

VI. MONITORING/RECORDKEEPING

Records shall be maintained on file for a period of five years. **(R 336.1213(3)(b)(ii))**

1. The permittee shall visually inspect and record observations of emissions from the cyclone exhausts while the process is operating. These inspections shall be conducted on a weekly basis, or in accordance with an alternate schedule approved by the AQD. **(R 336.1213(3))**

See Appendix 7

VII. REPORTING

1. Prompt reporting of deviations pursuant to General Conditions 21 and 22 of Part A. **(R 336.1213(3)(c)(ii))**

2. Semiannual reporting of monitoring and deviations pursuant to General Condition 23 of Part A. The report shall be postmarked or received by the appropriate AQD District Office by March 15 for reporting period July 1 to December 31 and September 15 for reporting period January 1 to June 30. **(R 336.1213(3)(c)(i))**

3. Annual certification of compliance pursuant to General Conditions 19 and 20 of Part A. The report shall be postmarked or received by the appropriate AQD District Office by March 15 for the previous calendar year. **(R 336.1213(4)(c))**

See Appendix 8

VIII. STACK/VENT RESTRICTION(S)

The exhaust gases from the stacks listed in the table below shall be discharged unobstructed vertically upwards to the ambient air unless otherwise noted:

Stack & Vent ID	Maximum Exhaust Dimensions (inches)	Minimum Height Above Ground (feet)	Underlying Applicable Requirements
NA	NA	NA	NA

IX. OTHER REQUIREMENT(S)

1. The air cleaning devices shall be maintained and operated in a satisfactory manner and in accordance with the Michigan Air Pollution Control Rules and existing law. The permittee shall carry out an Inspection and Maintenance Program, including keeping of records of inspections done, problems found, repairs done, and/or corrective action taken. [1] **(R 336.1301, R 336.1331, R 336.1910, R 336.1213(3))**

Footnotes:
[1] This condition is state only enforceable and was established pursuant to Rule 201(1)(b).
[2] This condition is federally enforceable and was established pursuant to Rule 201(1)(a).

EU2PD40 – Pulp Dryer
EMISSION UNIT CONDITIONS

DESCRIPTION

The #2 Pulp Dryer System (EU2PD40) is comprised of a pulp makedown system and a pulp dryer.

Flexible Group ID: NA

POLLUTION CONTROL EQUIPMENT

NA

I. EMISSION LIMIT(S)

Pollutant	Limit	Time Period/ Operating Scenario	Equipment	Monitoring/ Testing Method	Underlying Applicable Requirements
NA	NA	NA	NA	NA	NA

II. MATERIAL LIMIT(S)

Material	Limit	Time Period/ Operating Scenario	Equipment	Monitoring/ Testing Method	Underlying Applicable Requirements
NA	NA	NA	NA	NA	NA

III. PROCESS/OPERATIONAL RESTRICTION(S)

NA

IV. DESIGN/EQUIPMENT PARAMETER(S)

NA

V. TESTING/SAMPLING

Records shall be maintained on file for a period of five years. **(R 336.1213(3)(b)(ii))**

NA

See Appendix 5

VI. MONITORING/RECORDKEEPING

Records shall be maintained on file for a period of five years. **(R 336.1213(3)(b)(ii))**

1. On an annual basis, the permittee shall calculate and report the actual emissions of each regulated air pollutant as defined in Rule 212(6) for EU2PD40 utilizing the emissions inventory forms provided by the Department. **(R 336.1212(6), R 336.1213(3))**

See Appendix 7

VII. REPORTING

1. Prompt reporting of deviations pursuant to General Conditions 21 and 22 of Part A. **(R 336.1213(3)(c)(ii))**

2. Semiannual reporting of monitoring and deviations pursuant to General Condition 23 of Part A. The report shall be postmarked or received by the appropriate AQD District Office by March 15 for reporting period July 1 to December 31 and September 15 for reporting period January 1 to June 30. **(R 336.1213(3)(c)(i))**

3. Annual certification of compliance pursuant to General Conditions 19 and 20 of Part A. The report shall be postmarked or received by the appropriate AQD District Office by March 15 for the previous calendar year. **(R 336.1213(4)(c))**

See Appendix 8

VIII. STACK/VENT RESTRICTION(S)

The exhaust gases from the stacks listed in the table below shall be discharged unobstructed vertically upwards to the ambient air unless otherwise noted:

Stack & Vent ID	Maximum Exhaust Dimensions (inches)	Minimum Height Above Ground (feet)	Underlying Applicable Requirements
NA	NA	NA	NA

IX. OTHER REQUIREMENT(S)

NA

Footnotes:
[1] This condition is state only enforceable and was established pursuant to Rule 201(1)(b).
[2] This condition is federally enforceable and was established pursuant to Rule 201(1)(a).

EUCOND – Condensate Collection and Treatment EMISSION UNIT CONDITIONS

DESCRIPTION

The Condensate Collection and Treatment System (EUCOND) is a grouping of equipment used to collect and treat kraft pulping process condensates, and which are subject to the Standards For Kraft Pulping Process Condensates 40 CFR 63.446. The regulated equipment systems are identified in 40 CFR 63.446(b).

Flexible Group ID: NA

POLLUTION CONTROL EQUIPMENT

Closed collection system; Foul condensates are collected at the stripper column feed tank. Foul condensate treatment consists of pre-treatment through a steam stripper (see Steam Stripper System table) and final treatment at the brownstock washers (see Brownstock System table).

I. EMISSION LIMIT(S)

Pollutant	Limit	Time Period/ Operating Scenario	Equipment	Monitoring/ Testing Method	Underlying Applicable Requirements
1. Total HAP measured as methanol	See Process/ Operational Restrictions(s) below.	Test protocol	EUCOND	SC V.1 SC VI.1	**40 CFR 63.446 (c) (e)**

II. MATERIAL LIMIT(S)

Material	Limit	Time Period/ Operating Scenario	Equipment	Monitoring/ Testing Method	Underlying Applicable Requirements
NA	NA	NA	NA	NA	NA

III. PROCESS/OPERATIONAL RESTRICTION(S)

1. The pulping process condensates from the regulated equipment systems identified in 40 CFR 63.446(b) shall be treated to meet the requirements specified in 40 CFR 63.446(c), (d)(e). **(40 CFR 63.446(b))**

2. One of the following combinations of HAP-containing pulping process condensates generated, produced, or associated with the equipment listed in 40 CFR 63.446(b) shall be subject to the requirements of 40 CFR 63.446(d)(e): **(40 CFR 63.446(c))**
   a. All of the pulping process condensates from the equipment systems specified in 40 CFR 63.446(b)(1) through (b)(5). **(40 CFR 63.446(c)(1))**
   b. The combined pulping process condensates from the equipment systems specified in paragraphs 40 CFR 63.446(b)(4) and (b)(5), plus pulping process condensate stream(s) that in total contain at least 65% of the total HAP mass from the pulping process condensates from equipment listed in 40 CFR 63.446(b)(1) through (b)(3). **(40 CFR 63.446(c)(2))**
   c. The pulping process condensates from equipment systems listed in 40 CFR 63.446(b)(1) through (b)(5) that in total contain a total HAP mass of 11.1 pounds or more of total HAP per ton of oven-dried pulp, based upon a 15-day rolling average. **(40 CFR 63.446(c)(3))**

3. The pulping process condensates from the equipment systems shall be conveyed in a closed collection system that is designed and operated to meet the requirements specified in 40 CFR 63.446(d)(1) and (d)(2). **(40 CFR 63.446(d))**

4. Each pulping process condensate from the equipment systems listed in 40 CFR 63.446(b) shall be treated according to one of the following options: **(40 CFR 63.446(e))**
   a. Recycle the pulping process condensate to an equipment system specified in 40 CFR 443(a) meeting the requirements specified in 40 CFR 63.443(c) or (d); or **(40 CFR 63.446(e)(1))**
   b. Discharge the condensate below the liquid surface of a biological treatment system meeting the requirement specified in 40 CFR 63.446(e)(3); or **(40 CFR 63.446(e)(2))**
   c. Treat the pulping process condensate to reduce or destroy the total HAPs by at least 92% or more by weight; or **(40 CFR 63.446(e)(3))**
   d. Treat the pulping process condensates to remove 10.2 pounds or more of total HAP per ton of oven-dried pulp, based upon a 15-day rolling average**,** or achieve a total HAP concentration of 330 parts per million or less by weight at the outlet of the control device. **(40 CFR 63.446(e)(5))**

IV. DESIGN/EQUIPMENT PARAMETER(S)

NA

V. TESTING/SAMPLING

Records shall be maintained on file for a period of five years. **(R 336.1213(3)(b)(ii))**

1. Applicable test requirements, methods, and procedures as specified in 40 CFR Part 63, Subparts A and S. **(40 CFR 63.7, 40 CFR 63.457, R 336.1213(3))**

See Appendix 5

VI. MONITORING/RECORDKEEPING

Records shall be maintained on file for a period of five years. **(R 336.1213(3)(b)(ii))**

1. Applicable monitoring and recordkeeping provisions as specified in 40 CFR Part 63, Subpart S. **(40 CFR 63.453, 40 CFR 63.454, R 336.1213(3))**

See Appendix 7

VII. REPORTING

1. Prompt reporting of deviations pursuant to General Conditions 21 and 22 of Part A. **(R 336.1213(3)(c)(ii))**

2. Semiannual reporting of monitoring and deviations pursuant to General Condition 23 of Part A. The report shall be postmarked or received by the appropriate AQD District Office by March 15 for reporting period July 1 to December 31 and September 15 for reporting period January 1 to June 30. **(R 336.1213(3)(c)(i))**

3. Annual certification of compliance pursuant to General Conditions 19 and 20 of Part A. The report shall be postmarked or received by the appropriate AQD District Office by March 15 for the previous calendar year. **(R 336.1213(4)(c))**

4. Applicable reporting requirements as specified in 40 CFR Part 63, Subpart S. **(40 CFR 63.455, R 336.1213(3))**

See Appendix 8

VIII. STACK/VENT RESTRICTION(S)

The exhaust gases from the stacks listed in the table below shall be discharged unobstructed vertically upwards to the ambient air unless otherwise noted:

Stack & Vent ID	Maximum Exhaust Dimensions (inches)	Minimum Height Above Ground (feet)	Underlying Applicable Requirements
NA	NA	NA	NA

IX. OTHER REQUIREMENT(S)

1. The permittee must comply with the applicable requirements of 40 CFR Part 63, Subpart A – General Provisions, as indicated in 40 CFR Part 63, Table 1 to Subpart S – General Provisions Applicability to Subpart S. **(40 CFR 63.440(g))**

2. Each closed collection system used to comply with 40 CFR 63.446 requirements shall comply with the inspection requirements as specified in 40 CFR 63.453(k). **(40 CFR 63.453(k))**

Footnotes:
[1] This condition is state only enforceable and was established pursuant to Rule 201(1)(b).
[2] This condition is federally enforceable and was established pursuant to Rule 201(1)(a).

EURF15 – Chemical Recovery Furnace
EMISSION UNIT CONDITIONS

DESCRIPTION

The Chemical Recovery Furnace (EURF15) is used to regenerate chemicals used in the Kraft process. The #10 Recovery Furnace is rated for 565,000 pounds of steam per hour (approximately 950 million BTU per hour heat input), and burns black liquor, natural gas, #6 fuel oil, ultra-low sulfur diesel and used oil. Also, the #10 Recovery Furnace receives and incinerates HVLC noncondensable gases from the Digester System, Brownstock System, Evaporator System, and Chemical Recovery Furnace System. The secondary air forced-draft air handling fan on the Recovery Furnace has been modified.

Flexible Group ID: NA

POLLUTION CONTROL EQUIPMENT

Electrostatic precipitator on #10 Recovery Furnace

I. EMISSION LIMIT(S)

Pollutant	Limit	Time Period/ Operating Scenario	Equipment	Monitoring/ Testing Method	Underlying Applicable Requirements
1. Arsenic	0.004 mg/m^3 corrected to 70°F and 29.92 inches Hg[1]	Test Protocol*	EURF15 while burning used oil and/or blend fuel oil	SC V.2	**R 336.1901**
2. Cadmium	0.038 mg/m^3 corrected to 70°F and 29.92 inches Hg[1]	Test Protocol*	EURF15 while burning used oil and/or blend fuel oil	SC V.2	**R 336.1901**
3. Carbon Monoxide (CO)	2000 ppm by volume, based upon a one-hour average[2]	Test Protocol*	EURF15	SC V.1	**R 336.1201 40 CFR 52.21**
4. CO	1424 pph, based upon a one-hour average[2]	Test Protocol*	EURF15	SC V.1	**R 336.1201 40 CFR 52.21**
5. CO	800 ppm by volume, based upon an eight-hour average[2]	Test Protocol*	EURF15	SC V.1	**R 336.1201 40 CFR 52.21**
6. CO	570 pph, based upon ~~a~~an eight-hour average	Test Protocol*	EURF15	SC V.1	**R 336.1201 40 CFR 52.21**
7. Chromium	0.016 mg/m^3 corrected to 70°F and 29.92 inches Hg[1]	Test Protocol*	EURF15 while burning used oil and/or blend fuel oil	SC V.2	**R 336.1901**

Pollutant	Limit	Time Period/ Operating Scenario	Equipment	Monitoring/ Testing Method	Underlying Applicable Requirements
8. HAP Metals measured as PM	0.044 gr/dscf, corrected to 8% oxygen**	Test Protocol*	EURF15	SC V.3	**40 CFR 63.861 40 CFR 63.862 (a)(1)(i)(A) 40 CFR 63.865(b) 40 CFR 63.862 (a)(1)(ii) 40 CFR 63.865(a) 40 CFR 63.865 (b)**
9. NOx	400 ppm by volume[2]	Test Protocol*	EURF15	SC V.1	**R 336.1201 40 CFR 52.21**
10. NOx	468 pph[2]	Test Protocol*	EURF15	SC V.1	**R 336.1201 40 CFR 52.21**
11. PM	0.033 gr/dscf corrected to 8% oxygen***	Test Protocol*	EURF15	SC V.1	**R 336.1201 R 336.1331 40 CFR 52.21**
12. PM	60.5 pph**	Test Protocol*	EURF15	SC V.1	**R 336.1201 R 336.1331 40 CFR 52.21**
13. Polychlorinated Biphenyls	0.014 mg/m^3 corrected to 70°F and 29.92 inches Hg[1]	Test Protocol*	EURF15 while burning used oil and/or blend fuel oil	SC V.2	**R 336.1901**
14. SO_2	250 ppm by volume	Test Protocol*	EURF15	SC V.4	**R 336.1201 40 CFR 52.21**
15. SO_2	407 pph	Test Protocol*	EURF15	SC V.4	**R 336.1201 40 CFR 52.21**
16. Total Reduced Sulfur	5 ppm corrected to 8% oxygen on a 12-hour average[2]***	Test Protocol*	EURF15	SC VI.2	**R 336.1201 40 CFR 52.21**
17. Total Reduced Sulfur	5.6 pph[2] corrected to 8% oxygen on a 12-hour average[2]	Test Protocol*	EURF15	SC VI.2	**R 336.1201 40 CFR 52.21 40 CFR 60.283**
18. Visible Emissions	20% opacity[2]	Test Protocol*	EURF15	General conditions A.11	**R 336.1301(1)**

* Test Protocol will specify averaging time.

** The permittee shall comply with the emission limits specified in one of the following options as provided in 40 CFR Part 63, Subpart MM:

a. The Particulate Matter (PM) concentration in the EURF15 exhaust gases shall not exceed 0.044 gr/dscf, corrected to 8% oxygen.[2]

OR

b. Alternative PM emission limits established for each existing recovery furnace, smelt dissolving tank, and lime kiln that operates 6,300 hours per year or more as provided under 40 CFR 63.862(a)(1)(ii), subject to the limitations specified. [2]

*** The permittee may petition the Department for an alternate particulate limit up to, but not exceeding, 0.044 gr/dscf of exhaust gases corrected to 8% oxygen. Such alternate particulate emission limit shall not be established by the Department unless the Department is reasonably convinced of all the following:

a. All reasonable measures to reduce particulate emissions have been implemented or will be implemented in accordance with a schedule approved by the Department.
b. Compliance with the original particulate emission limit is either technically or economically unreasonable.
c. The requested alternate particulate limit is the limit that reflects the level of emission that can be reasonable achieved on a consistent basis.

**** Average Flow calculated from the most recent stack test will be used to calculate pph TRS

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II. MATERIAL LIMIT(S)

Material	Limit	Time Period/ Operating Scenario	Equipment	Monitoring/ Testing Method	Underlying Applicable Requirements
1. Used Oil	The concentration of the following materials in the used oil shall not exceed the limits specified below: a. Arsenic: 4 ppmw[1] b. Cadmium: 2 ppmw[1] c. Chromium: 10 ppmw[1] d. Lead: 25 ppmw[1] e. Total Halogens: 300 ppmw[1] f. Polychlorinated Biphenyls: 3 ppmw[1]	Annual Test	EURF15	SC VI.9	**R 336.1901**
2. Used Oil	The minimum flash point temperature of the used oil burned in the EURF15 shall be greater than 100°F. [1]	Annual Test	EURF15	SC VI.9	**R 336.1901**
3. Used Oil	Not to exceed 15% of the total feed rate of the fuel oil blend[1]	As defined in Testing/Sampling	EURF15	SC VI.8	**R 336.1901**

III. PROCESS/OPERATIONAL RESTRICTION(S)

1. The EURF15 operating load shall be reduced to 77,600 pounds of Black Liquor Solids (BLS) per hour if any two electric fields of the electrostatic precipitator are placed out of service. Return to operation exceeding 77,600 pounds of solids per hour shall not commence unless the two fields are returned to service. [2] **(R 336.1201, 40 CFR 52.21, R 336.1331, R 336.1910)**

2. The EURF15 operating load shall be reduced to 77,600 pounds of BLS per hour if any one of the two chambers of the electrostatic precipitator are down for maintenance, during which all other ESP fields are operating in the active chamber. Return to operation exceeding 77,600 pounds of solids per hour shall not commence unless the other chamber of the electrostatic precipitator is returned to service. [2] **(R 336.1201, 40 CFR 52.21, R 336.1331, R 336.1910)**

IV. DESIGN/EQUIPMENT PARAMETER(S)

NA

V. TESTING/SAMPLING

Records shall be maintained on file for a period of five years. **(R 336.1213(3)(b)(ii))**

1. The permittee shall verify carbon monoxide, nitrogen oxides, and particulate emission rates from EURF15-1 by testing at owner's expense, in accordance with Department requirements. Once within five years of permit issuance, and once every five year period thereafter, the permittee shall verify the emission rates from the EURF15 by testing, to determine compliance with the emission limits specified in Section I**.** The permittee shall submit a complete test protocol to the AQD for approval at least 30 days prior to the anticipated test date. The permittee shall notify the AQD no less than 7 days prior to the anticipate test date. The permittee shall submit two complete test reports of the test results to the AQD, one to the Technical Program Unit and one to the district office, within 60 days following the last date of the test. [2] **(R 336.1205, R 336.1213, R 336.1299, R 336.2001, R 336.2003, R 336.2004, R 336.2803, R 336.2804, 40 CFR 52.21 (c) and (d), 40 CFR 60.285(d))**

2. If the permittee burns used oil and/or blend fuel oil during sustained operation of the EURF15, the permittee shall verify arsenic, cadmium, chromium, and polychlorinated biphenyls emissions from the EURF15 by testing at owner's expense, in accordance with Department requirements. Once within five years of permit issuance, and once every five year period thereafter, or if the permittee subsequently burns used oil and/or blend fuel oil, the permittee shall verify the rates from the EURF15, by testing, to determine compliance with the emission limit specified in SC I**.** The permittee shall submit a complete test protocol to the AQD for approval at least 30 days prior to the anticipated test date. The permittee shall notify the AQD no less than 7 days prior to the anticipate test date. The permittee shall submit two complete test reports of the test results to the AQD, one to the Technical Program Unit and one to the district office, within 60 days following the last date of the test. [2] **(R 336.1213, R 336.1224, R 336.1225, R 336.1299, R 336.2001, R 336.2003, R 336.2004)**

3. Permittee shall conduct performance tests for Particulate Matter per the applicable performance test requirements and test methods specified in 40 CFR Part 63, Subpart A and MM. **(R 336.1213(3), 40 CFR 63.7, 40 CFR 63.865)**

4. Performance tests shall be conducted according to procedures and test methods specified or approved by the AQD. Not less than 30 days prior to testing, a testing plan shall be submitted to the AQD for review. **(R 336.2001, R 336.2003)**

See Appendix 5

VI. MONITORING/RECORDKEEPING

Records shall be maintained on file for a period of five years. **(R 336.1213(3)(b)(ii))**

1. The permittee shall complete all required calculations in a format acceptable to the AQD District Supervisor and make them available by the 30th day of the calendar month, for the previous calendar month, unless otherwise specified in any monitoring/recordkeeping special condition. [2] **(R 336.1205, R 336.1301, R 336.1331, R 336.1901, R 336.1910, R 336.2803, R 336.2804, 40 CFR 52.21 (c) and (d))**

2. The permittee shall monitor and record the oxygen content, opacity, and total reduced sulfur of the exhaust gases from EURF15 on a continuous basis in a manner and with instrumentation acceptable to the AQD. [2] The TRS monitoring shall utilize the quality assurance/quality control activities of 40 CFR Part 60, Appendix F, Procedure 1 as a guideline. Daily calibrations shall be conducted in accordance with 40 CFR Part 60, Appendix F, Procedure 1 Section 4. A cylinder gas audit shall be conducted once each calendar quarter in accordance with 40 CFR Part

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60, Appendix F, Procedure 1 Section 5.1.2 in lieu of performing a relative accuracy test audit.[2] **(R 336.1201, 40 CFR 52.21, 40 CFR 60.284, R 336.1213(3))**

3. The permittee shall install, calibrate, maintain, and operate a COMS according to the provisions in 40 CFR 63.6(h) and 63.8. **(40 CFR 63.864(d), R 336.1213(3))**

4. The permittee shall monitor and record the black liquor feed rate to EURF15 on a continuous basis in a manner and with instrumentation acceptable to the AQD.[2] **(R 336.1201, R336.1213(3))**

5. The permittee shall monitor the electric current and/or voltage supplied to the twelve fields of the electrostatic precipitator on a continuous basis and in a manner and with instrumentation acceptable to the AQD.[2] **(R 336.1201, R 336.1213(3))**

6. The permittee shall monitor and record all occurrences when two fields of the electrostatic precipitator are taken out of service as specified under Operational Parameters below, the duration of each occurrence, and the black liquor solids firing rate during each occurrence. **(R 336.1213(3))**

7. The permittee shall keep a log of #6 fuel oil deliveries including date of delivery, quantity of #6 fuel oil received, and an analysis of the #6 fuel oil. **(R 336.1901)**[1]

8. The permittee shall keep a record of the percentage of used oil in the fuel oil blend burned in the Recovery Furnace to determine compliance with the 15 percent limitation specified under Material Limits above. **(R 336.1901)**[1]

9. An annual analysis of the used oil prior to transferring the used oil to the one million gallon #6 fuel oil storage tank shall be conducted to determine compliance with the material limits specified under Material Limits above. **(R 336.1901)**[1]

10. Within 30 days after written notification by the AQD, the permittee shall submit an analysis of the used oil and blend fuel oil fired in EURF15. **(R 336.1901)**[1]

11. The permittee shall implement corrective action, as specified in the SSM plan prepared under 40 CFR 63.866(a) when the average of ten consecutive 6 minute averages result in a measurement greater than 20 percent opacity. **(40 CFR 63.864(k)(1)(i))**

12. The source will be considered in violation of the standards of 40 CFR 63.862 if opacity is greater than 35% for 6% or more of the operating time in any quarterly period as specified in and 40 CFR 63.864(k)(2).[2] **(40 CFR 63.864(k)(2))**

~~13. The permittee shall, in a satisfactory manner, monitor on a continuous basis and record on a daily average, the horsepower (hp) to the motor on the secondary air forced-draft air handling fan on EURF15.[2] **(R 336.1205, R 336.1301, R 336.1331, R 336.1901, R 336.1910, R336.2802, 40CFR 52.21)**~~

~~14.~~13. As specified in §63.8(c)(4)(i), each COMS must complete a minimum of one cycle of sampling and analyzing for each successive 10-second period and one cycle of data recording for each successive 6-minute period. **(40 CFR 63.864(d)(3))**

~~15.~~14. The COMS data must be reduced as specified in §63.8(g)(2). **(40 CFR 63.864(d)(4))**

See Appendix 7

VII. REPORTING

1. Prompt reporting of deviations pursuant to General Conditions 21 and 22 of Part A. **(R 336.1213(3)(c)(ii))**

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2. Semiannual reporting of monitoring and deviations pursuant to General Condition 23 of Part A. The report shall be postmarked or received by the appropriate AQD District Office by March 15 for reporting period July 1 to December 31 and September 15 for reporting period January 1 to June 30. **(R 336.1213(3)(c)(i))**

3. Annual certification of compliance pursuant to General Conditions 19 and 20 of Part A. The report shall be postmarked or received by the appropriate AQD District Office by March 15 for the previous calendar year. **(R 336.1213(4)(c))**

4. Quarterly reporting of TRS continuous monitoring system performance and excess TRS emissions from the EURF15 as specified in Notification and Record Keeping, 40 CFR Part 60, Subpart A. **(R 336.1213(3), 40 CFR 60.7(c))**

5. Semiannual reporting of excess emissions of opacity from the EURF15 as specified in 40 CFR Part 60, Subpart BB. Due March 15 for reporting period July 1 to December 31 and September 15 for reporting period January 1 to June 30. **(R 336.1213(3), 40 CFR 60.284(d)(1))**

6. The permittee shall submit the applicable notifications and reports specified in 40 CFR 63.9 and 40 CFR 63.10. The permittee shall submit a quarterly excess emissions report if measured parameters meet any of the Conditions specified in 40 CFR 63.864(k)(1) or (2). When no exceedances of parameters have occurred, permittee shall submit a semiannual report stating that no excess emissions occurred during the reporting period. **(40 CFR 63.867)**

7. The permittee shall complete two complete test protocols to the AQD, one to the Technical Programs Unit Supervisor and one to the District Supervisor for approval at least 30 days prior to the anticipated test. The protocol shall describe the test method(s) and the maximum routine operating conditions, including targets for key operational parameters associated with air pollution control equipment to be monitored and recorded during testing. **(R 336.2001(3))**

8. The permittee shall notify the AQD Technical Programs Unit Supervisor and the District Supervisor no less than 7 days prior to the anticipated test date. **(R 336.2001(4))**

9. The permittee shall submit two complete test reports to the AQD, one to the Technical Programs Unit Supervisor and one to the District Supervisor, within 60 days following the last date of the test. **(R 336.2001(5))**

See Appendix 8

VIII. STACK/VENT RESTRICTION(S)

The exhaust gases from the stacks listed in the table below shall be discharged unobstructed vertically upwards to the ambient air unless otherwise noted:

Stack & Vent ID	Maximum Exhaust Dimensions (inches)	Minimum Height Above Ground (feet)	Underlying Applicable Requirements
1. SV51001S	156[2]	284[2]	**R 336.1225 R 336.2803 R 336.2804 40 CFR 52.21 (c)(d)**

IX. OTHER REQUIREMENT(S)

1. The air cleaning devices shall be maintained and operated in a satisfactory manner and in accordance with the Michigan Air Pollution Control Rules and existing law. The permittee shall carry out an Inspection and Maintenance Program, including keeping of records of inspections done, problems found, repairs done, and/or corrective action taken. **(R 336.1301, R 336.1331, R 336.1910, R 336.1213(3))**

2. The permittee shall develop and implement a Startup, Shutdown, and Malfunction Plan as specified in 40 CFR Part 63, Subpart MM. **(R 336.1213(3), 40 CFR 63.866)**

3. The permittee shall comply with the applicable requirements of 40 CFR Part 63, Subpart A – General Provisions which are identified in 40 CFR Part 63, Table 1 to Subpart MM – General Provisions Applicability to Subpart MM. **(40 CFR 63.860(c))**

Footnotes:
[1] This condition is state only enforceable and was established pursuant to Rule 201(1)(b).
[2] This condition is federally enforceable and was established pursuant to Rule 201(1)(a).

EUST15 – Smelt Dissolving Tank
EMISSION UNIT CONDITIONS

DESCRIPTION

The Smelt Dissolving Tank (EUST15) is used to regenerate chemicals used in the kraft process. The Smelt Dissolving Tank receives smelt from the #10 Recovery Furnace, which it mixes with weak wash to generate green liquor that is transported to the Recausticizing System.

Flexible Group ID: NA

POLLUTION CONTROL EQUIPMENT

Wet scrubber and mist eliminator on EUST15.

I. EMISSION LIMIT(S)

Pollutant	Limit	Time Period/ Operating Scenario	Equipment	Monitoring/ Testing Method	Underlying Applicable Requirements
1. HAP Metals measured as PM*	0.20 lb per ton of black liquor solids fired[2]	Test Protocol	EUST15	SC V.3	**40 CFR 63.862(a)(i)(B) 40 CFR 63.865(b)**
2. PM	0.15 lb/1000 lbs of exhaust gases calculated on a dry gas basis[2]	Test Protocol	EUST15	SC V.1 SC V.2	**R 336.1201 R 336.1331 40 CFR 52.21**
3. Total Reduced Sulfur (TRS)	0.0084 gr/kg of black liquor solids[2]	12-hour average	EUST15	SC V.1 SC V.2	**R 336.1201 40 CFR 52.21**

* Alternate Particulate Matter (PM) emission limits may be established for each existing recovery furnace, smelt dissolving tank, and lime kiln that operates 6,300 hours per year or more as provided under 40 CFR 63.862(a)(1)(ii), subject to limitations specified.[2] **(40 CFR 63.862(a)(1)(ii), 40 CFR 63.865(a), 40 CFR 63.865(b))**

II. MATERIAL LIMIT(S)

Material	Limit	Time Period/ Operating Scenario	Equipment	Monitoring/ Testing Method	Underlying Applicable Requirements
NA	NA	NA	NA	NA	NA

III. PROCESS/OPERATIONAL RESTRICTION(S)

NA

IV. DESIGN/EQUIPMENT PARAMETER(S)

NA

V. TESTING/SAMPLING

Records shall be maintained on file for a period of five years. **(R 336.1213(3)(b)(ii))**

1. The permittee shall verify particulate and TRS emission rates from EUST15 by testing at owner's expense, in accordance with Department requirements. Once within five years of permit issuance, and once every five year period thereafter, to determine compliance with the emission limits specified in Section I. The permittee shall submit a complete test protocol to the AQD for approval at least 30 days prior to the anticipated test date. The permittee shall notify the AQD no less than 7 days prior to the anticipate test date. The permittee shall submit two complete test reports of the test results to the AQD, one to the Technical Program Unit and one to the district office, within 60 days following the last date of the test. [2] **(R 336.1201, R 336.1213(3))**

2. Performance tests shall be conducted according to procedures and test methods specified or approved by the AQD. Not less than 30 days prior to testing, a test plan shall be submitted to the AQD for review and approval. **(R 336.2001, R 336.2003)**

3. Permittee shall conduct performance tests for particulate matter per the applicable performance test requirements and test methods specified in 40 CFR Part 63, Subpart A and MM. **(R 336.1213(3), 40 CFR 63.7, 40 CFR 63.865**

See Appendix 5

VI. MONITORING/RECORDKEEPING

Records shall be maintained on file for a period of five years. **(R 336.1213(3)(b)(ii))**

1. The permittee shall install, calibrate, maintain and operate a continuous monitoring system to measure fan run status and the scrubbing liquid flow rate at least once every successive 15 minute period using the procedures in 40 CFR 63.8.[2] **(40 CFR 63.864(e)(10), 40 CFR 60.13(a), 40 CFR 63.8(b)(1))**

2. The minimum scrubber liquid flow rate established during the most recent performance test approved by the Administrator shall be used as an indicator of proper operation of the scrubber.[2] **(40 CFR 63.864(i))**

3. The permittee shall maintain operating parameters within the range established according to 40 CFR 63.864(i). The source will be considered in violation of the standards in 40 CFR 63.862 if six or more 3 hour average parameter values within any semi–annual reporting period are outside the established operating range, at all times except during periods of SSM. No more than one exceedance will be attributed to any 24 hour period. **(40 CFR 63.864(k)(2)(iii), 40 CFR 63.864(k)(3))**

4. The permittee shall implement corrective action, as specified in the SSM plan prepared under 40 CFR 63.866(a) when any 3 hour average parameter value is outside the range of values established as provided in 40 CFR 63.864(I). **(40 CFR 63.864(k)(1)(ii))**

5. The permittee shall maintain the records specified in 40 CFR 63.866(b)(c) in addition to the record keeping requirements of 40 CFR 63.10(b)(2). **(40 CFR 63.866(b)-(c))**

6. The monitoring device used for continuous measurement of the scrubbing liquid flow rate must be certified by the manufacturer to be accurate within ±5 percent of the design scrubbing liquid flow rate.
(40 CFR 63.864(e)(10)(ii))

See Appendix 7

VII. REPORTING

1. Prompt reporting of deviations pursuant to General Conditions 21 and 22 of Part A. **(R 336.1213(3)(c)(ii))**

2. Semiannual reporting of monitoring and deviations pursuant to General Condition 23 of Part A. The report shall be postmarked or received by the appropriate AQD District Office by March 15 for reporting period July 1 to December 31 and September 15 for reporting period January 1 to June 30. **(R 336.1213(3)(c)(i))**

3. Annual certification of compliance pursuant to General Conditions 19 and 20 of Part A. The report shall be postmarked or received by the appropriate AQD District Office by March 15 for the previous calendar year. **(R 336.1213(4)(c))**

4. The permittee shall submit the applicable notifications and reports specified in 40 CFR 63.9 and 40 CFR 63.10. The permittee shall submit a quarterly excess emissions report if measured parameters meet any of the conditions specified in 40 CFR 63.864(k)(1) or (2). When no exceedances of parameters have occurred, permittee shall submit a semiannual report stating that no excess emissions occurred during the reporting period. **(40 CFR 63.867)**

5. The permittee shall complete two complete test protocols to the AQD, one to the Technical Programs Unit Supervisor and one to the District Supervisor for approval at least 30 days prior to the anticipated test. The protocol shall describe the test method(s) and the maximum routine operating conditions, including targets for key operational parameters associated with air pollution control equipment to be monitored and recorded during testing. **(R 336.2001(3))**

6. The permittee shall notify the AQD Technical Programs Unit Supervisor and the District Supervisor no less than 7 days prior to the anticipated test date. **(R 336.2001(4))**

7. The permittee shall submit two complete test reports to the AQD, one to the Technical Programs Unit Supervisor and one to the District Supervisor, within 60 days following the last date of the test. **(R 336.2001(5))**

See Appendix 8

VIII. STACK/VENT RESTRICTION(S)

The exhaust gases from the stacks listed in the table below shall be discharged unobstructed vertically upwards to the ambient air unless otherwise noted:

Stack & Vent ID	Maximum Exhaust Dimensions (inches)	Minimum Height Above Ground (feet)	Underlying Applicable Requirements
1. SV15007S	48[2]	288[2]	**R 336.1901 40 CFR 52.21**

IX. OTHER REQUIREMENT(S)

1. The air cleaning devices shall be maintained and operated in a satisfactory manner and in accordance with the Michigan Air Pollution Control Rules and existing law. The permittee shall carry out an Inspection and Maintenance Program, including keeping of records of inspections done, problems found, repairs done, and/or corrective action taken.[2] **(R 336.1301, R 336.1910, R 336.1213(3))**

2. The permittee shall develop and implement a Startup, Shutdown, and Malfunction Plan as specified in 40 CFR Part 63, Subpart MM. **(R 336.1213(3), 40 CFR 63.866)**

3. The permittee shall comply with the applicable requirements of 40 CFR Part 63, Subpart A – General Provisions which are identified in 40 CFR Part 63, Table 1 to Subpart MM – General Provisions Applicability to Subpart MM. **(40 CFR 63.860(c))**

Footnotes:
[1] This condition is state only enforceable and was established pursuant to Rule 201(1)(b).
[2] This condition is federally enforceable and was established pursuant to Rule 201(1)(a).

EUS29 – Recausticizing System
EMISSION UNIT CONDITIONS

DESCRIPTION

The Recausticizing System has one emission unit: Lime Slaker (EUS29). In the slaker, calcium oxide from the Lime Kiln System (FGLK29) reacts with green liquor from the Smelt Dissolving tank (EUST15) to produce white liquor and lime mud. The reaction is carried out in the slaker and causticizers. The mixture is separated in two white liquor clarifiers. White liquor is used in the digesters as a cooking chemical. Lime mud is washed, dewatered and oxidized in the Lime Kiln System to regenerate calcium oxide for the slaking process.

Flexible Group ID: NA

POLLUTION CONTROL EQUIPMENT

Wet scrubber

I. EMISSION LIMIT(S)

Pollutant	Limit	Time Period/ Operating Scenario	Equipment	Monitoring/ Testing Method	Underlying Applicable Requirements
1. Particulate	0.10 lb / 1000 lbs of exhaust gas measured at operating conditions[2]	Test Protocol	EUS29	SC V.1 SC V.2	**R 336.1331**

II. MATERIAL LIMIT(S)

Material	Limit	Time Period/ Operating Scenario	Equipment	Monitoring/ Testing Method	Underlying Applicable Requirements
NA	NA	NA	NA	NA	NA

III. PROCESS/OPERATIONAL RESTRICTION(S)

NA

IV. DESIGN/EQUIPMENT PARAMETER(S)

NA

V. TESTING/SAMPLING

Records shall be maintained on file for a period of five years. **(R 336.1213(3)(b)(ii))**

1. The permittee shall test for Particulates according to procedures and test methods specified or approved by the AQD. Permittee shall submit a test plan for review and approval to the AQD for review not less than 30 days prior to the test.[2] **(R 336.2001, R 336.2003)**

2. The permittee shall verify particulate emission rates from EUS29 by testing at owner's expense, in accordance with Department requirements. Once within five years of permit issuance, and once every five year period thereafter, the permittee shall verify the emission rates from the EUS29 by testing, to determine compliance with the emission limits specified in SC I. The permittee shall submit a complete test protocol to the AQD for approval

at least 30 days prior to the anticipated test date. The permittee shall notify the AQD no less than 7 days prior to the anticipated test date. The permittee shall submit two complete test reports of the test results to the AQD, one to the Technical Program Unit and one to the district office, within 60 days following the last date of the test. **(R 336.1213(3))**

See Appendix 5

VI. MONITORING/RECORDKEEPING

Records shall be maintained on file for a period of five years. **(R 336.1213(3)(b)(ii))**

1. The permittee shall equip the Lime Slaker scrubber with at least one of the following: **(R 336.1213(3), R 336.1910)**
   a. Operable water pressure gauge
   b. Operable water flow meter
   c. Viewport with pivoted cover or quick release hatch
   d. Scrubber drain with readily visible sump to verify scrubber water flow

2. The permittee shall continuously monitor the scrubber liquid flow rate and record every 15 minutes for a 3 hour average as an indicator of proper operation of the venturi scrubber. The indicator range is a range determined during the last performance test approved by the Administrator and specified in the facility's Compliance Assurance Monitoring (CAM) Plan. **(40 CFR 64.6(c)(1)(i and ii))**

3. An excursion is a departure from the indicator range determined during the last performance test approved by the Administrator and specified in the facility's Compliance Assurance Monitoring (CAM) Plan. **(40 CFR 64.6(c)(2))**

4. Upon detecting an excursion or exceedance, the owner or operator shall restore operation of the pollutant-specific emissions unit (including the control device and associated capture system) to its normal or usual manner of operation as expeditiously as practicable in accordance with good air pollution control practices for minimizing emissions. The response shall include minimizing the period of any startup, shutdown or malfunction and taking any necessary corrective actions to restore normal operation and prevent the likely recurrence of the cause of an excursion or exceedance (other than those caused by excused startup or shutdown conditions). **(40 CFR 64.7(d))**

5. Except for, as applicable, monitoring malfunctions, associated repairs, and required quality assurance or control activities (including, as applicable, calibration checks and required zero and span adjustments), the owner or operator shall conduct all monitoring in continuous operation (or shall collect data at all required intervals) at all times that the pollutant-specific emissions unit is operating. Data recorded during monitoring malfunctions, associated repairs, and required quality assurance or control activities shall not be used for purposes of this part, including data averages and calculations or fulfilling a minimum data availability requirement, if applicable. The owner or operator shall use all the data collected during all other periods in assessing the operation of the control device and associated control system. A monitoring malfunction is any sudden, infrequent, not reasonably preventable failure of the monitoring to provide valid data. Monitoring failures that are caused in part by poor maintenance or careless operation are not malfunctions. **(40 CFR 64.6(c)(3), 64.7(c))**

6. The permittee shall properly maintain the monitoring system, including keeping necessary parts for routine repair of the monitoring equipment. **(40 CFR 64.7(b))**

7. The permittee shall maintain records of monitoring data, monitor performance data, corrective actions taken, any written quality improvement plan and any activities undertaken to implement a quality improvement plan, and other information such as data used to document the adequacy of monitoring, or records of monitoring maintenance or corrective actions. **(40 CFR 64.9(b)(1))**

See Appendix 7

VII. REPORTING

1. Prompt reporting of deviations pursuant to General Conditions 21 and 22 of Part A. **(R 336.1213(3)(c)(ii))**

2. Semiannual reporting of monitoring and deviations pursuant to General Condition 23 of Part A. The report shall be postmarked or received by the appropriate AQD District Office by March 15 for reporting period July 1 to December 31 and September 15 for reporting period January 1 to June 30. **(R 336.1213(3)(c)(i))**

3. Annual certification of compliance pursuant to General Conditions 19 and 20 of Part A. The report shall be postmarked or received by the appropriate AQD District Office by March 15 for the previous calendar year. **(R 336.1213(4)(c))**

4. Each semiannual report of monitoring and deviations as specified under the CAM requirements shall include summary information on monitor downtime. If there were no periods of monitor downtime in the reporting period, then this report shall include a statement that there were no periods of monitor downtime. **(40 CFR 64.9(a)(2)(ii))**

5. Each semiannual report of monitoring deviations as specified under the CAM requirements shall include summary information on the number, duration, and cause of CAM exceedances/excursions in the reporting period; and the corrective actions taken in response. If there were no excursions/exceedances in the reporting period, then this report shall include a statement that there were no excursions/exceedances. **(40 CFR 64.9(a)(2)(i))**

6. The permittee shall complete two complete test protocols to the AQD, one to the Technical Programs Unit Supervisor and one to the District Supervisor for approval at least 30 days prior to the anticipated test. The protocol shall describe the test method(s) and the maximum routine operating conditions, including targets for key operational parameters associated with air pollution control equipment to be monitored and recorded during testing. **(R 336.2001(3))**

7. The permittee shall notify the AQD Technical Programs Unit Supervisor and the District Supervisor no less than 7 days prior to the anticipated test date. **(R 336.2001(4))**

8. The permittee shall submit two complete test reports to the AQD, one to the Technical Programs Unit Supervisor and one to the District Supervisor, within 60 days following the last date of the test. **(R 336.2001(5))**

See Appendix 8

VIII. STACK/VENT RESTRICTION(S)

The exhaust gases from the stacks listed in the table below shall be discharged unobstructed vertically upwards to the ambient air unless otherwise noted:

Stack & Vent ID	Maximum Exhaust Dimensions (inches)	Minimum Height Above Ground (feet)	Underlying Applicable Requirements
NA	NA	NA	NA

IX. OTHER REQUIREMENT(S)

1. The air cleaning devices shall be maintained and operated in a satisfactory manner and in accordance with the Michigan Air Pollution Control Rules and existing law. The permittee shall carry out an Inspection and Maintenance Program, including keeping of records of inspections done, problems found, repairs done, and/or corrective action taken. **(R 336.1301, R 336.1331, R 336.1910, R 336.1213(3))**

2. The permittee shall comply with all applicable requirements of 40 CFR Part 64. **(40 CFR Part 64)**

3. If the permittee identifies a failure to achieve compliance with an emission limitation or standard for which the approved monitoring did not provide an indication of an excursion or exceedance while providing valid data, or the results of compliance or performance testing document a need to modify the existing indicator ranges or designated conditions, the permittee shall promptly notify the AQD and if necessary, submit a proposed modification of the CAM Plan to address the necessary monitoring changes. Such a modification may include but is not limited to, reestablishing indicator ranges or designated conditions, modifying the frequency of conducting monitoring and collecting data, or the monitoring of additional parameters. **(40 CFR 64.7(e))**

Footnotes:

[1] This condition is state only enforceable and was established pursuant to Rule 201(1)(b).
[2] This condition is federally enforceable and was established pursuant to Rule 201(1)(a).

EUPB – Paint Spray Booth
EMISSION UNIT CONDITIONS

DESCRIPTION

Maintenance Paint Spray Booth

Flexible Group ID: NA

POLLUTION CONTROL EQUIPMENT

Dry exhaust filters.

I. EMISSION LIMIT(S)

Pollutant	Limit	Time Period/ Operating Scenario	Equipment	Monitoring/ Testing Method	Underlying Applicable Requirements
NA	NA	NA	NA	NA	NA

II. MATERIAL LIMIT(S)

Material	Limit	Time Period/ Operating Scenario	Equipment	Monitoring/ Testing Method	Underlying Applicable Requirements
1. Coatings	200 gallons as applied, minus water[2]	Per month	EUPB	SC VI.1	**R 336.1213(2)**

III. PROCESS/OPERATIONAL RESTRICTION(S)

1. The permittee shall keep all dry exhaust filters in place whenever EUPB is in operation. **(R 336.1213(2), R 336.1910)**

IV. DESIGN/EQUIPMENT PARAMETER(S)

NA

V. TESTING/SAMPLING

Records shall be maintained on file for a period of five years. **(R 336.1213(3)(b)(ii))**

NA

See Appendix 5

VI. MONITORING/RECORDKEEPING

Records shall be maintained on file for a period of five years. **(R 336.1213(3)(b)(ii))**

1. The permittee shall keep a monthly record of the total quantity of coatings used in EUPB, as applied, minus water. **(R 336.1213(3))**

See Appendix 7

VII. REPORTING

1. Prompt reporting of deviations pursuant to General Conditions 21 and 22 of Part A. **(R 336.1213(3)(c)(ii))**

2. Semiannual reporting of monitoring and deviations pursuant to General Condition 23 of Part A. The report shall be postmarked or received by the appropriate AQD District Office by March 15 for reporting period July 1 to December 31 and September 15 for reporting period January 1 to June 30. **(R 336.1213(3)(c)(i))**

3. Annual certification of compliance pursuant to General Conditions 19 and 20 of Part A. The report shall be postmarked or received by the appropriate AQD District Office by March 15 for the previous calendar year. **(R 336.1213(4)(c))**

See Appendix 8

VIII. STACK/VENT RESTRICTION(S)

The exhaust gases from the stacks listed in the table below shall be discharged unobstructed vertically upwards to the ambient air unless otherwise noted:

Stack & Vent ID	Maximum Exhaust Dimensions (inches)	Minimum Height Above Ground (feet)	Underlying Applicable Requirements
NA	NA	NA	NA

IX. OTHER REQUIREMENT(S)

1. The air cleaning devices shall be maintained and operated in a satisfactory manner and in accordance with the Michigan Air Pollution Control Rules and existing law. The permittee shall carry out an Inspection and Maintenance Program, including keeping of records of inspections done, problems found, repairs done, and/or corrective action taken. **(R 336.1301, R 336.1331, R 336.1910, R 336.1213(3))**

Footnotes:
[1] This condition is state only enforceable and was established pursuant to Rule 201(1)(b).
[2] This condition is federally enforceable and was established pursuant to Rule 201(1)(a).

D. FLEXIBLE GROUP CONDITIONS

Part D outlines the terms and conditions that apply to more than one emission unit. The permittee is subject to the special conditions for each flexible group in addition to the General Conditions in Part A and any other terms and conditions contained in this ROP.

The permittee shall comply with all specific details in the special conditions and the underlying applicable requirements cited. If a specific condition type does not apply, NA (not applicable) has been used in the table. If there are no special conditions that apply to more than one emission unit, this section will be left blank.

FLEXIBLE GROUP SUMMARY TABLE

The descriptions provided below are for informational purposes and do not constitute enforceable conditions.

Flexible Group ID	Flexible Group Description	Associated Emission Unit IDs
FG9B03	The #9 Boiler (EU9B03) is a Babcock & Wilcox boiler rated for 250,000 pounds of steam per hour (approximately 360 million BTU per hour heat input) that provides steam for mill processes and steam turbine-generators for producing electricity. The #9 boiler burns primarily wood residue, but may also burn natural gas, and paper cores. The #9 Boiler System (FG9B03) has two emission units, the #9 Boiler and Wood Residue Surge Bin (EUSB03). Controls include a multiclone and two wet scrubbers on the #9 boiler exhaust and a cyclone dust collector on Wood Residue Surge Bin.	EU9B03 EUSB03
~~FGFAHS68~~FG11BFA	The #11 Boiler System Flexible group (FG11BFA), has eight emission units that are part of #11 Boiler (EU11B68) and the #11 Boiler Fuel and Ash Handling systems (multiple emission units). The #11 Boiler is an ABB Combustion Engineering combination fuel boiler rated for 750,000 pounds of steam per hour (approximately 1040 million BTU per hour heat input) that provides steam for mill processes and steam turbine-generators for producing electricity. The #11 Boiler burns natural gas and solid fuels, which include pulverized coal, wood residue, wastewater treatment plant residuals, Tire-Derived Fuel (TDF), and non-hazardous secondary material (NHSM) pellets. The #11 Boiler Fuel and Ash Handling System (FGFAHS68) includes the following emission units: Coal Handling (EUCH68), Fuel Handling including wood residue, wastewater treatment plant residuals, pellet fuel, and TDF (EUFH68), #1 Coal Silo (EU1S68), #2 Coal Silo (EU2S68), #3 Coal Silo (EU3S68), #1 Ash Silo (EU1AS68), and #2 Ash Silo (EU2AS68). Controls include: Individual Baghouses on #1, #2, and #3 Coal Silos; Baghouse on #2 Ash Silo; Pugmills for wetting ash from #1 and #2 Ash Silos prior to loading into trucks for disposal.	EU11B68 EUCH68 EUFH68 EU1S68 EU2S68 EU3S68 EU1AS68 EU2AS68
FGSB14	The Chip Surge Bin System (FGSB14) has two emission units: #1 Chip Surge Bin (EU1SB14) and #2 Chip Surge Bin (EU2SB14). Controls include the #1 Chipper Cyclone and the #2 Chipper Cyclone.	EU1SB14 EU2SB14

Flexible Group ID	Flexible Group Description	Associated Emission Unit IDs
FGRMP	The Refiner Mechanical Pulping System (FGRMP) has three emission units: the Chip Silo (EUCS61), the Chip Surge Bin (EUSB61), and Refiner Mechanical Pulping (EURMP61). Controls include a Chip Silo Cyclone and a Chip Surge Bin Cyclone.	EUCS61 EUSB61 EURMP61
FGPAPER	Paper Machine Systems (FGPAPER) includes the #1 Paper Machine (EU1PM32) and associated stock preparation equipment, the #3 Paper Machine (EU3PM07) and associated stock preparation equipment and the #4 Paper Machine (EU4PM64) and associated preparation equipment.	EU1PM32 EU3PM07 EU4PM64
FGCOATER	The Paper Machine Coaters (FGCOATER) includes 3 emission units: the #1 Coater (EU1C36), the #3 Coater (EU3C27), and the #4 Coater (EU4C65). These coaters are subject to 40 CFR Part 63, Subpart JJJJ.	EU1C36 EU3C27 EU4C65
FGSTARCH	Paper Machine and Coater Dry Starch Systems (FGSTARCH) include equipment for the handling and make-down of starch for the paper machines and coaters: The #1 Coater Dry Starch System equipment (EUSS43) includes #1 and #2 Starch Silo, #1 and #2 Starch Day Bins, and #1 and #2 Starch Wet Out Tanks. The #3 Paper Machine Dry Starch System equipment includes #1 Starch Silo (EU1SS08) and the #1 Starch Makedown Tank (EU1M08). The #3 Coater Dry Starch System includes the #2 Starch Silo (EU2SS08), #3 Starch Silo (EU3SS08), and #2 Starch Makedown Tank (EU2M08). The #4 Coater System includes Starch Storage (EUSS66) consisting of #1 and #2 Starch Silos. For the #1 Coater Dry Starch System, Individual baghouse dust collectors serving #1 and #2 Starch Silos, common baghouse serving #1 and #2 Starch Day Bins, and common baghouse serving #1 and #2 Starch Wet Out Tanks. For the #3 Paper Machine, baghouse dust collectors serve #1 Starch Silo and #1 Starch Makedown Tank. For the #3 Coater Dry Starch System, baghouse dust collectors serve the #2 Starch Silo, #3 Starch Silo, and #2 Starch Makedown Tank. For the #4 Coater System, Individual baghouse dust collectors serve the #1 and #2 Starch Silos.	EUSS43 EU1SS08 EUIM08 EU2SS08 EU3SS08 EU2M08 EUSS66

Flexible Group ID	Flexible Group Description	Associated Emission Unit IDs
FGBBKRAFT	Kraft Pulp Mill Subpart BB Systems (FGBBKRAFT) include the following: The Digester System (EUBB22) consists of batch digesters, blow tanks, and a blowheat condensing system. The Brownstock System (EUBB23) processes brown pulp from the digester blow tanks and includes the knotters, brownstock washers, and associated vacuum pumps and filtrate tanks. The Brownstock System is used for final treatment of Kraft pulping process condensates regulated under the Standards for Kraft Pulping Process Condensates 40 CFR 63.446 (see EUCOND - Condensate Collection and Treatment System). The Steam Stripping System (EUBB33) consists of a steam stripper column and reflux condenser used to strip total reduced sulfur (TRS) compounds from condensate streams from various processes in the Kraft pulp mill. The Steam Stripping System is also used to pre-treat kraft pulping process condensates regulated under the Standards for Kraft Pulping Process Condensates 40 CFR 63.446 (see EUCOND - Condensate Collection and Treatment System). The Evaporator System (EUBB05) consists of a multiple-effect evaporator and associated condensers and hotwell used to concentrate the spent cooking liquid that is separated from the pulp (black liquor). Gases from the EUBB22 Digester System, the EUBB33 Steam Stripping System, and the EUBB05 Evaporator System are routed to the EULVHC closed vent gas collection system and destroyed in the Thermal Oxidizer (EUOC33) or the Lime Kiln (EULK15) as a backup. Gases from the EUBB23 Brownstock System and the EUBB22 Digester System digester domes and capping valves are routed to the EUHVLC closed vent gas collection system and destroyed in Chemical Recovery Furnace (EURF15).	EUBB22 EUBB23 EUBB33 EUBB05
FGLVHC	The LVHC System (FGLVHC) consists of a collection of equipment regulated by 40 CFR Part 63, Subpart S including the digesters, turpentine recovery, evaporator, steam stripping system, and associated equipment which vent to the LVHC gas collection system. Emission Units include: Evaporator NSPS Devices (EUBB05), Digester Other Devices (EUOT22), Digester NSPS Devices (EUBB22), and Miscellaneous Turpentine Handling Devices (EUMT22), Steam Stripping NSPS Devices (EUBB33) and Miscellaneous Condensate Stripping System Devices (EUMC33). LVHC gases from FGLVHC are collected in a closed vent collection system and incinerated in the Thermal Oxidizer (EUOC33) or the Lime Kiln (EULK15) as a backup incineration device.	EUBB05 EUOT22 EUBB22 EUMT22 EUBB33 EUMC33

Flexible Group ID	Flexible Group Description	Associated Emission Unit IDs
FGHVLC	The HVLC System (FGHVLC) consists of a collection of equipment regulated by 40 CFR Part 63, Subpart S including the following: knotters, brownstock washers, brownstock filtrate tanks, digester fugitive gases, and black liquor storage and processing tanks. Emission Units include: EUBB22 digester capping valves, Brownstock NSPS Devices (EUBB23) and Miscellaneous Evaporator System Devices (EUME05). HVLC gases from FGHVLC are collected in a closed vent system and destroyed in the Chemical Recovery Furnace (EURF15).	EUBB22 EUBB23 EUME05
FGTO33	The Thermal Oxidizer System (FGTO33) includes two emission units: The Thermal Oxidizer (EUOC33), which is a dedicated incineration device for gases from the EULVHC System and the Soda Ash Storage Tank (EUSA33). Exhaust from the Thermal Oxidizer (EUOC33) is routed through a packed scrubber which utilizes a soda ash scrubbing solution to control sulfur dioxide emissions.	EUOC33 EUSA33
FGB25	The Bleaching System (FGB25) has four emission units: Bleaching Equipment (EUS25) which includes the bleaching stage equipment where chlorine dioxide is applied and removed. the Chlorine Dioxide Plant (EUB25S1), Extraction Devices (EUED25), and Methanol Storage (EUM25). The Bleaching System is used to whiten Brownstock pulp for papermaking. Bleaching is accomplished through the use of chemicals, bleaching towers, extraction towers, and washers. Chlorine dioxide is used for bleaching, and is manufactured on site. Gases from the pulp bleaching stages are routed in a closed vent collection system to the Bleach Plant Scrubber System which consists of two packed scrubbers in series. Off-gases from the chlorine dioxide generator and storage tanks are scrubbed with chilled water in a tail gas scrubber prior to being scrubbed in the Bleach Plant Scrubber system.	EUS25 EUB25 EUED25 EUM25
FGLK29	The Lime Kiln System (FGLK29) includes the Lime Kiln (EULK29) and two Lime Storage Bins (EULKI29), one for hot lime storage, one for purchased lime storage. The Lime Kiln is fired with natural gas and/or fuel oil. Also, the Lime Kiln is a backup incineration device for the Thermal Oxidizer System. Controls include a venturi scrubber and mist eliminator on the Lime Kiln and common baghouse dust collector on the Lime Storage Bins.	EULK29 EULKI29
FGSIRICE	The Spark Ignition Emergency Engine Group (FGSIRICE) consists of 2 spark ignition engines: The Lime Kiln Emergency Drive Motor (EULKSIRICE) and the EOC Back-up Generator (EUEOCSIRICE). The engines are used to provide mechanical work or power a generator in emergency situations. Both engines are 4 stroke lean burn <250 HP.	EULKSIRICE EUEOCSIRICE

Flexible Group ID	Flexible Group Description	Associated Emission Unit IDs
FGCIRICE	The Compression Ignition Emergency Engine Group (FGCIRICE) consists of 4 compression ignition engines: the E1 Emergency Lift Pump (EUE1CIRICE), the Water Treatment Building Emergency Fire Water Pump (EUFW1CIRICE), the Administrative Building Emergency Fire Water Pump (EUFW2CIRICE), and the Turbine Turning Gear Back-up Generator (EUTTGCIRICE). The engines are used to provide mechanical work and to power pumps (e.g., fire water pump).in emergency situations. All engines are 4 stroke lean burn <250 HP.	EUE1CIRICE EUFW1CIRICE EUFW2CIRICE EUTTGCIRICE
~~FGEVAPORATORMOD~~	~~The Evaporator System consists of equipment used to concentrate weak black liquor as a part of the chemical recovery process for Kraft pulping liquor. The preheat falling intermediate solids concentrator (ISC) portion of the evaporator system was replaced with a Reynolds Enhanced Crystallizer (REX) design. Based on the actual-to-projected-actual applicability test, this is a minor modification for purposes of major source review for both attainment area and nonattainment area regulations. This flexible group is for emissions tracking associated with PTI 66-11, issued 11/3/2011.~~	~~EUBB23~~ ~~EURF15~~ ~~EUST15~~ ~~EUS29~~ ~~EUBB05~~ ~~EUME05~~ ~~EUOT22~~ ~~EUBB22~~ ~~EUMT22~~ ~~EUBB33~~ ~~EUMC33~~ ~~EUOC33~~ ~~EUSA33~~ ~~EULK29~~ ~~EUB25~~ ~~EUED25~~ ~~EUM25~~ ~~EU4PM64~~ ~~EU4C65~~ ~~EUSS66~~ ~~EU1SB14~~ ~~EU2SB14~~ ~~EUCS14~~

Flexible Group ID	Flexible Group Description	Associated Emission Unit IDs
~~FGRFMOD~~	~~Operation of the Recovery Furnace variable frequency drive (VFD) on the secondary air forced-draft air handling fan motor. The existing fan motor (900 hp) will be replaced with a VFD (1250 hp). Modification to the secondary air forced-draft air fan motor including new fan shaft, impeller, impeller housing and VFD. This flexible group is for emissions tracking associated with PTI 127-11D, issued 5/13/2014.~~	~~EUBB23~~ ~~EURF15~~ ~~EUST15~~ ~~EUS29~~ ~~EUBB05~~ ~~EUME05~~ ~~EUOT22~~ ~~EUBB22~~ ~~EUMT22~~ ~~EUBB33~~ ~~EUMC33~~ ~~EUOC33~~ ~~EUSA33~~ ~~EULK29~~ ~~EUB25~~ ~~EUED25~~ ~~EUM25~~ ~~EU4PM64~~ ~~EU4C65~~ ~~EUSS66~~ ~~EU1SB14~~ ~~EU2SB14~~ ~~EUCS14~~ ~~FGFUGITIVE~~
FGFUGITIVE	Fugitive dust emissions associated with roadways, softwood east chip pile, hardwood west chip pile and drop points. This flexible group is for emissions tracking associated with PTI 127-11D, issued 5/13/2014.	NA
~~FG4PM~~	~~Operation of EU4PM64 No. 4 Paper Machine System to revise production above year 2001 permitted limits through tracking records of emissions and heat input. This flexible group is for emissions tracking associated with PTI 9-01B, issued 9/25/2012.~~	~~EU4PM64~~ ~~EU8B13~~ ~~EU9B03~~ ~~EU11B68~~ ~~EURF15~~
FGBMACTB09B11	Requirements for existing boiler(s) and process heater(s) that are designed with air distributors to spread the fuel material over the entire width and depth of the boiler combustion zone. The biomass fuel combusted in these units exceeds a moisture content of 40 percent on an as-fired annual heat input basis as demonstrated by monthly fuel analysis. The drying and much of the combustion of the fuel takes place in suspension, and the combustion is completed on the grate or floor of the boiler.	EU9B03 EU11B68

Flexible Group ID	Flexible Group Description	Associated Emission Unit IDs
FGBMACTB07B08	Requirements for existing boiler(s) and process heater(s) that are designed to burn gas 1 subcategory fuel with a heat input capacity of 10 MMBTU/hr or greater at major sources of HAP emissions per 40 CFR Part 63, Subpart DDDDD (Boiler MACT). Units designed to burn gas 1 subcategory fuels include boilers or process heaters that burn only natural gas, refinery gas, and/or Other Gas 1 fuels. Units that burn liquid fuel for testing or maintenance purposes for less than a total of 48 hours per year, or that burn liquid fuel during periods of curtailment or supply interruptions are included in this definition.	EU7B17 EU8B13

FG9B03 - #9 Boiler System
FLEXIBLE GROUP CONDITIONS

DESCRIPTION

The #9 Boiler System (FG9B03) has two emission units, the #9 Boiler and Wood Residue Surge Bin (EUSB03). The #~~ ~~9 Boiler (EU9B03) is a Babcock & Wilcox boiler rated for 250,000 pounds of steam per hour (approximately 360 million BTU per hour heat input) that provides steam for mill processes and steam turbine-generators for producing electricity. The #~~ ~~9 boiler burns primarily wood residue, but may also burn natural gas, and paper cores.

Emission Units: EU9B03, EUSB03

POLLUTION CONTROL EQUIPMENT

Multiclone and two wet scrubbers on the #~~ ~~9 boiler exhaust; Cyclone dust collector on Wood Residue Surge Bin.

I. EMISSION LIMIT(S)

Pollutant	Limit	Time Period/ Operating Scenario	Equipment	Monitoring/ Testing Method	Underlying Applicable Requirements
1. NOx*	Limits specified in Table 81 of Rule 801[1]	Ozone Season	EU9B03	SC VI.3	**R 336.1801**
2. NOx	0.27 lb/MMBtu[2]	Test Protocol	EU9B03	SC V.3	**40 CFR 52.1183(i)**
3. PM	0.50 lb / 1000 lbs exhaust gases, corrected to 50% excess air**	If the wood residue heat input is > 75% of the total heat input to the boiler/Test Protocol	EU9B03	SC V.1	**R 336.1201** **R 336.1331**
4. PM	The fraction of total heat input from the wood residue times 0.67 lb / 1000 lbs exhaust gases, corrected to 50% excess air**	If the wood residue heat input is $\leq$ 75% of the total heat input to the boiler/Test Protocol	EU9B03	SC V.1	**R 336.1201** **R 336.1331**
5. PM	0.10 lb / 1000 lbs exhaust gases**	Approved Plan	EUSB03	SC IX.1	**R 336.1331**

* During years when the boiler meets the definition of a fossil fuel fired emission unit per the definition in R 336.1801(1)(b) [1]
** Measured at operating conditions.

II. MATERIAL LIMIT(S)

Material	Limit	Time Period/ Operating Scenario	Equipment	Monitoring/ Testing Method	Underlying Applicable Requirements
NA	NA	NA	NA	NA	**NA**

III. PROCESS/OPERATIONAL RESTRICTION(S)

1. The permittee shall not operate EU9B03 while burning wood residue and/or paper cores unless the multiclone dust collector and two wet scrubbers are operating properly. **(R 336.1201, R 336.1910)**

2. The permittee shall immediately cease wood residue input feed to EU9B03, consistent with safe operating procedures, upon initiation of scrubber bypass. During a scrubber bypass, the permittee shall burn only natural gas in EU9B03. Wood residue fuel input shall not be restarted until the scrubber is back on line and functioning properly. **(R 336.1201, R 336.1331, R 336.1910)**

IV. DESIGN/EQUIPMENT PARAMETER(S)

NA

V. TESTING/SAMPLING

Records shall be maintained on file for a period of five years. **(R 336.1213(3)(b)(ii))**

1. The permittee shall verify PM emission rates from EU9B03 by testing at owner's expense, in accordance with Department requirements. Once within three years of permit issuance, the permittee shall verify the emission rates from the EU0B03 by testing, to determine compliance with the emission limits specified in Section I**.** 40 CFR Part 63, Subpart DDDDD emissions testing for these pollutants can be used to satisfy this requirement. The permittee shall submit a complete test protocol to the AQD for approval at least 30 days prior to the anticipated test date. The permittee shall notify the AQD no less than 7 days prior to the anticipate test date. The permittee shall submit two complete test reports of the test results to the AQD, one to the Technical Program Unit and one to the district office, within 60 days following the last date of the test.
(R 336.1213(3), R 336.2001, R 336.2003)

2. Performance tests shall be conducted according to procedures and test methods specified or approved by the AQD. Not less than 30 days prior to testing, a testing plan shall be submitted to the AQD for review. **(R 336.2001, R 336.2003)**

3. The reference test method for assessing compliance with the limit in section I.2 shall be a test conducted in accordance with 40 CFR Part 60, Appendix A, Method 7. (**40 CFR 52.1183(i))**

See Appendix 5

VI. MONITORING/RECORDKEEPING

Records shall be maintained on file for a period of five years. **(R 336.1213(3)(b)(ii))**

1. The permittee shall equip each wet scrubber with a pressure drop indicator and a flow meter. **(R 336.1213(3))**

2. The permittee shall keep records of the quantities and respective BTU content, of natural gas, wood residue, and paper cores burned in the ~~#~~9 boiler. **(R 336.1213(3))**

3. By the date specified in the rule, applicable oxides of nitrogen monitoring and recordkeeping provisions as specified in Rule 801 shall be kept. [1] **(R 336.1801)**

4. The permittee shall continuously measure and record pressure drop on the North and South scrubbers as an indicator of proper operation of the scrubber. The indicator range for each scrubber is a range determined during the last performance test approved by the AQD and specified in the facility's Compliance Assurance Monitoring (CAM) Plan. **(40 CFR 64.6(c)(1)(i and ii))**

5. The permittee shall continuously monitor and record the scrubber liquid flow rate on the North and South scrubbers as an indicator of proper operation of the scrubber. The indicator range for each scrubber is a range determined during the last performance test approved by the AQD and specified in the facility's Compliance Assurance Monitoring (CAM) Plan. **(40 CFR 64.6(c)(1)(i and ii))**

6. The pressure drop indicator shall continuously monitor the scrubber pressure. The averaging period is based on a three hour averaging time. The monitor shall be calibrated annually. **(40 CFR 64.6(c)(1)(iii))**

7. The liquid flow gauge shall continuously monitor the scrubber liquid flow rate. The averaging period is based on a three hour averaging time. The monitor shall be calibrated annually. **(40 CFR 64.6(c)(1)(iii))**

8. An excursion is a departure from the scrubber pressure drop or liquid flow rate indicator range determined during the last performance test approved by the AQD and specified in the facility's Compliance Assurance Monitoring (CAM) Plan. **(40 CFR 64.6(c)(2))**

9. Upon detecting an excursion or exceedance, the owner or operator shall restore operation of the pollutant-specific emissions unit (including the control device and associated capture system) to its normal or usual manner of operation as expeditiously as practicable in accordance with good air pollution control practices for minimizing emissions. The response shall include minimizing the period of any startup, shutdown or malfunction and taking any necessary corrective actions to restore normal operation and prevent the likely recurrence of the cause of an excursion or exceedance (other than those caused by excused startup or shutdown conditions). **(40 CFR 64.7(d))**

10. Except for, as applicable, monitoring malfunctions, associated repairs, and required quality assurance or control activities (including, as applicable, calibration checks and required zero and span adjustments), the owner or operator shall conduct all monitoring in continuous operation (or shall collect data at all required intervals) at all times that the pollutant-specific emissions unit is operating. Data recorded during monitoring malfunctions, associated repairs, and required quality assurance or control activities shall not be used for purposes of this part, including data averages and calculations or fulfilling a minimum data availability requirement, if applicable. The owner or operator shall use all the data collected during all other periods in assessing the operation of the control device and associated control system. A monitoring malfunction is any sudden, infrequent, not reasonably preventable failure of the monitoring to provide valid data. Monitoring failures that are caused in part by poor maintenance or careless operation are not malfunctions. **(40 CFR 64.6(c)(3), 64.7(c))**

11. The permittee shall properly maintain the monitoring system, including keeping necessary parts for routine repair of the monitoring equipment. **(40 CFR 64.7(b))**

12. The permittee shall maintain records of monitoring data, monitor performance data, corrective actions taken, any written quality improvement plan and any activities undertaken to implement a quality improvement plan, and other information such as data used to document the adequacy of monitoring, or records of monitoring maintenance or corrective actions. **(40 CFR 64.9(b)(1))**

13. The owner/operator shall maintain all NOx stack test result records regarding Boiler 9 for at least five years (**40 CFR 52.1183(i)**):
    a. All stack test results.
    b. Daily records of fuel usage, heat input, and data used to determine heat content.
    c. Records of all major maintenance activities conducted on emission units and air pollution control equipment.
    d. Any other records identified in 40 CFR 60.49b(g).

See Appendix 7

VII. <u>REPORTING</u>

1. Prompt reporting of deviations pursuant to General Conditions 21 and 22 of Part A. **(R 336.1213(3)(c)(ii))**

2. Semiannual reporting of monitoring and deviations pursuant to General Condition 23 of Part A. The report shall be postmarked or received by the appropriate AQD District Office by March 15 for reporting period July 1 to December 31 and September 15 for reporting period January 1 to June 30. **(R 336.1213(3)(c)(i))**

3. Annual certification of compliance pursuant to General Conditions 19 and 20 of Part A. The report shall be postmarked or received by the appropriate AQD District Office by March 15 for the previous calendar year. **(R 336.1213(4)(c))**

4. The permittee shall comply with applicable oxides of nitrogen reporting and compliance certification requirements as specified in Rule 801, during years when the boiler meets the definition of a fossil fuel fired emission unit. The definition of a fossil fuel fired emission unit is identified in R 336.1801(1)(b).[1] **(R 336.1801)**

5. The permittee shall submit the results of the Nitrogen Oxide performance tests within 60 days of the last date of the test. [1] **(R 336.1801(9)(d))**

6. Each semiannual report of monitoring and deviations as specified under the CAM requirements shall include summary information on monitor downtime. If there were no periods of monitor downtime in the reporting period, then this report shall include a statement that there were no periods of monitor downtime. **(40 CFR 64.9(a)(2)(ii))**

7. Each semiannual report of monitoring deviations shall include summary information on the number, duration, and cause of CAM exceedances/excursions in the reporting period; and the corrective actions taken in response. If there were no excursions/exceedances in the reporting period, then this report shall include a statement that there were no excursions/exceedances. **(40 CFR 64.9(a)(2)(i))**

8. The owner/operator of Boiler 9 shall submit reports of any compliance test measuring NOx emissions from Boiler 9 within 60 days of the last day of the test. If the owner/operator commences operation of a continuous NOx emission monitoring system for Boiler 9, owner/operator shall submit reports for Boiler 9 as specified in 40 CFR 52.1183(i)(7)(i) to (iv). All reports under 40 CFR 52.1183(i) shall be submitted to the Chief, Air Enforcement and Compliance Assurance Branch, U.S. Environmental Protection Agency, Region 5, Mail Code AE–17J, 77 W. Jackson Blvd., Chicago, IL 60604–3590. (**40 CFR 52.1183(i))**

9. The permittee shall complete two complete test protocols to the AQD, one to the Technical Programs Unit Supervisor and one to the District Supervisor for approval at least 30 days prior to the anticipated test. The protocol shall describe the test method(s) and the maximum routine operating conditions, including targets for key operational parameters associated with air pollution control equipment to be monitored and recorded during testing. **(R 336.12001(3))**

10. The permittee shall notify the AQD Technical Programs Unit Supervisor and the District Supervisor no less than 7 days prior to the anticipated test date. **(R 336.2001(4))**

11. The permittee shall submit two complete test reports to the AQD, one to the Technical Programs Unit Supervisor and one to the District Supervisor, within 60 days following the last date of the test. **(R 336.2001(5))**

See Appendix 8

VIII. STACK/VENT RESTRICTION(S)

The exhaust gases from the stacks listed in the table below shall be discharged unobstructed vertically upwards to the ambient air unless otherwise noted:

Stack & Vent ID	Maximum Exhaust Dimensions (inches)	Minimum Height Above Ground (feet)	Underlying Applicable Requirements
1. SV03020S	84[2]	285[2]	**R 336.1901** **R 336.1801** **40 CFR 52.1183(i)**
2. SV03021S	84[2]	285[2]	**R 336.1901** **R 336.1801** **40 CFR 52.1183(i)**

IX. OTHER REQUIREMENT(S)

1. The air cleaning devices shall be maintained and operated in a satisfactory manner and in accordance with the Michigan Air Pollution Control Rules and existing law. The permittee shall carry out an Inspection and Maintenance Program, including keeping of records of inspections done, problems found, repairs done and/or corrective action taken. **(R 336.1301, R 336.1331, R 336.1910, R 336.1213(3))**

2. The permittee shall comply with all applicable requirements of 40 CFR Part 64. **(40 CFR Part 64)**

3. If the permittee identifies a failure to achieve compliance with an emission limitation or standard for which the approved monitoring did not provide an indication of an excursion or exceedance while providing valid data, or the results of compliance or performance testing document a need to modify the existing indicator ranges or designated conditions, the permittee shall promptly notify the AQD and if necessary, submit a proposed modification of the CAM Plan to address the necessary monitoring changes. Such a modification may include but is not limited to, reestablishing indicator ranges or designated conditions, modifying the frequency of conducting monitoring and collecting data, or the monitoring of additional parameters. **(40 CFR 64.7(e))**

4. The permittee shall comply with the provisions of the National Emission Standards for Hazardous Air Pollutants, as specified in 40 CFR Part 63, Subpart A and Subpart DDDDD, as they apply to EU9B03, by the initial compliance date. **(40 CFR Part 63, Subparts A and DDDDD)**

Footnotes:
[1]This condition is state-only enforceable and was established pursuant to Rule 201(1)(b).
[2]This condition is federally enforceable and was established pursuant to Rule 201(1)(a).

~~FGFAHS68~~ FG11BFA- #11 Boiler ~~Fuel and Ash Handling~~System FLEXIBLE GROUP CONDITIONS

DESCRIPTION

The #11 Boiler System Flexible group (FG11BFA), has eight emission units that are part of #11 Boiler (EU11B68) and the #11 Boiler Fuel and Ash Handling systems (multiple emission units).

#11 Boiler was installed 1981 and modified 1986. It is an ABB Combustion Engineering combination fuel boiler rated for 750,000 pounds of steam per hour (approximately 1040 million BTU per hour heat input) that provides steam for mill processes and steam turbine-generators for producing electricity. The #11 Boiler burns natural gas and solid fuels, which include pulverized coal, wood residue, wastewater treatment plant residuals, Tire-Derived Fuel (TDF), and non-hazardous secondary material (NHSM) pellets.

The #11 Boiler Fuel and Ash Handling System ~~(FGFAHS68)~~ includes the following emission units: Coal Handling (EUCH68), Fuel Handling including wood residue, wastewater treatment plant residuals, pellet fuel, and TDF (EUFH68), #1 Coal Silo (EU1S68), #2 Coal Silo (EU2S68), #3 Coal Silo (EU3S68), #1 Ash Silo (EU1AS68), and #2 Ash Silo (EU2AS68).

Emission Unit: EU11B68, EUCH68, EUFH68, EU1S68, EU2S68, EU3S68, EU1AS68, EU2AS68
Flexible Group ID: FGBMACTB09B11 has additional requirements for FGB11BFA

POLLUTION CONTROL EQUIPMENT

Over-fired Air System (OFA) modified 2012, Multiclone and Electrostatic Precipitator on EU11B68

Individual Baghouses on #1, #2, and #3 Coal Silos; Baghouse on #2 Ash Silo; Pugmills for wetting ash from #1 and #2 Ash Silos prior to loading into trucks for disposal.

I. EMISSION LIMIT(S)

Pollutant	Limit	Time Period/ Operating Scenario	Equipment	Monitoring/ Testing Method	Underlying Applicable Requirements
1. CO	0.50 lb / MMBTU heat input2	When firing solid fuels	EU11B68	SC V.1	**R 336.1201** **40 CFR 52.21**
2. NOx	0.70 lb / MMBTU heat input2	30-day rolling average, when firing solid fuels	EU11B68	SC VI.2	**R 336.1201** **40 CFR Part 60 Subpart Db** **40 CFR 52.21**
3. NOx*	Limits specified in Table 81 of Rule 8011	Ozone Season	EU11B68	SC VI.3	**R 336.1801**
4. PM	0.06 lb / MMBTU heat input2	When firing solid fuels	EU11B68	SC V.1	**R 336.1201** **40 CFR 52.21** **40 CFR Part 60 Subpart D**
5. SO2	1.2 lbs /MMBTU heat input2	10-day rolling average, when firing solid fuels	EU11B68	SC VI.8	**R 336.1201** **40 CFR Part 60 Subpart D** **40 CFR 52.21**

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Pollutant	Limit	Time Period/ Operating Scenario	Equipment	Monitoring/ Testing Method	Underlying Applicable Requirements
6. Mercury	7.1 lb2	24-hour period, when firing wastewater treatment plant residuals	EU11B68	SC VI.22	**40 CFR 61.52(b)**
7. Visible Emissions	20% opacity[2]	Test Protocol*	EU11B68	General conditions A.11	**R 336.1301(1)**
~~1.~~8. PM	0.03 gr / dscf of exhaust gases[2]	Approved Plan	Each exhaust of FGFAHS68 equipment for handling and storage of wood residue, coal, wastewater treatment plant residuals, and ash	SC IX.1	**R 336.1201 40 CFR 52.21**
~~2.~~9. Visible Emissions	5% opacity[2]	Instantaneous	FGFAHS68 equipment for handling solid fuels and ash	SC IX.2	**R 336.1201 R 336.1301**
10. CO, HCl, Mercury, PM, Visible Emissions	See FGBMACTB09B11	See FGBMACTB09B11	EU11B68	See FGBMACTB09B11	See FGBMACTB09B11
* During years when the boiler meets the definition of a fossil fuel fired emission unit per the definition in R 336.1801(1)(b).					

II. MATERIAL LIMIT(S)

Material	Limit	Time Period/ Operating Scenario	Equipment	Monitoring/ Testing Method	Underlying Applicable Requirements
~~NA~~	~~NA~~	~~NA~~	~~NA~~	~~NA~~	~~NA~~
1. Boiler Fuel	At least 45% by weight of the fuel fired during normal operation is wood residue and/or wastewater treatment plant residuals measured as a percentage of wet weight of wood residue and/or wastewater treatment plant residuals per the total wet weight of all solid fuels[2]	10-day rolling average	EU11B68	SC VI.5	**R 336.1201 40 CFR 52.21**

Material	Limit	Time Period/ Operating Scenario	Equipment	Monitoring/ Testing Method	Underlying Applicable Requirements
2. Coal – Sulfur Content	Average of 1.0 percent by weight, calculated on the basis of 12,000 BTU /lb[2]	10-day rolling average	EU11B68	SC VI.6	**R 336.1201 40 CFR Part 60 Subpart D 40 CFR 52.21**
3. TDF	90 tons per day[2]	Monthly average	EU11B68	SC VI.7	**R 336.1205(1)(a) R 336.1205(3)**
4. TDF	32,220 tons per year[2]	12-month rolling average	EU11B68	SC VI.7	**R 336.1205(1)(a) R 336.1205(3)**
5. Engineered non-waste fuel pellets	88,700 tons per year[2]	12-month rolling time period as determined at the end of each calendar month	EU11B68	SC VI.12	**R 336.1205(1)(a) R 336.1205(3) R 336.1225**
6. Engineered non-waste fuel pellets - chlorine (or total halogen content *	15,000 ppm [2]	By weight, as received	EU11B68	SC VI.11	**R 336.1225**
7. Engineered non-waste fuel pellets	20% heat input	12-month rolling time period as determined at the end of each calendar month	EU11B68	SC VI.13	**R 336.1205(1)(a) R 336.1205(3) R 336.1225**

III. PROCESS/OPERATIONAL RESTRICTION(S)

1. ~~1.~~ The permittee shall not use solid fuel to start up EU11B68. [2] **(R 336.1201, 40 CFR 52.21, R 336.1331)**

2. The permittee shall not operate EU11B68 unless the multiclone and electrostatic precipitator are operating properly. [2] **(R 336.1201, 40 CFR 52.21, R 336.1331, R 336.1910)**Solid fuels feed to EU11B68 shall be reduced immediately, consistent with safe operating procedures, upon operating the electrostatic precipitator as single chambered unit during maintenance. Solid fuels input feed to EU11B68 may be increased when the electrostatic precipitator is back on line and functioning properly. [2] **(R 336.1201, R 336.1331, R 336.1910)**

3. The permittee shall not operate the EU11B68 equipment for the handling and storage of solid fuels unless the dust collection equipment is operating properly. [2] **(R 336.1201, 40 CFR 52.21, R 336.1901, R 336.1910, R 336.1371, R 336.1372)**

4. All coal handling and storage shall be totally enclosed or equipped with dust suppression or baghouse control equipment. [2] **(R 336.1201, 40 CFR 52.21, R 336.1901, R 336.1371, R 336.1372)**

5. Reference FGBMACTB09B11 for Process/Operational Restrictions.

~~2. All coal handling and storage shall be totally enclosed or equipped with dust suppression or baghouse control equipment. [2] **(R 336.1201, 40 CFR 52.21, R 336.1901, R 336.1371, R 336.1372)**~~

IV. DESIGN/EQUIPMENT PARAMETER(S)

NA

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V. TESTING/SAMPLING

Records shall be maintained on file for a period of five years. **(R 336.1213(3)(b)(ii))**

1. The permittee shall verify carbon monoxide and PM emission rates from EU11B68 by testing at owner's expense, in accordance with Department requirements. Once within five years of permit issuance, and once every five year period thereafter, the permittee shall verify the emission rates from the EU11B68 by testing, to determine compliance with the emission limits specified in Section I. 40 CFR Part 63, Subpart DDDDD emissions testing for these pollutants can be used to satisfy this requirement. The permittee shall submit a complete test protocol to the AQD for approval at least 30 days prior to the anticipated test date. The permittee shall notify the AQD no less than 7 days prior to the anticipate test date. The permittee shall submit two complete test reports of the test results to the AQD, one to the Technical Program Unit and one to the district office, within 60 days following the last date of the test. [2] **(R 336.1201(3), R 336.1213(3))**

2. Performance tests shall be conducted according to procedures and test methods specified or approved by the AQD. Not less than 30 days prior to testing, a testing plan shall be submitted to the AQD for review. **(R 336.2001, R 336.2003)**

3. Verification of the supplier certificate of analysis for engineered non-waste fuel pellets may be required, by sampling at owner's expense, in accordance with Department requirements. [2] **(R 336.2001, R 336.2003)**

4. Reference FGBMACTB09B11 for Testing/Sampling requirements.
~~NA~~

See Appendix 5

VI. MONITORING/RECORDKEEPING

Records shall be maintained on file for a period of five years. **(R 336.1213(3)(b)(ii))**

1. The permittee shall monitor and record the opacity and oxygen from EU11B68 on a continuous basis in a manner and with instrumentation acceptable to the AQD. [2] **(R 336.1201, R 336.2101, 40 CFR Part 60, Subpart D)**

2. The permittee shall monitor and record the nitrogen oxides emission from EU11B68 on a continuous basis in a manner and with instrumentation acceptable to the AQD. [2] **(R 336.1201, 40 CFR 52.21, 40 CFR Part 60, Subpart Db)**

3. The permittee shall measure NOx emissions using a NOx CEMS during the ozone control period in accordance with the provisions of R 336.1801(11) when subject to the ozone control period as described in Part I above.[1] **(R 336.1801(8))**

4. The permittee shall keep records of the quantities of natural gas and solid fuels burned in EU11B68. **(R 336.1213(3))**

5. The permittee shall monitor and record the percentage of wood residue fuel and/or wastewater treatment plant residuals fired in EU11B68 to determine compliance with the limitation specified under Material Usage and Emission Limits above. **(R 336.1213(3))**

6. The permittee shall obtain and keep records of the sulfur, ash, and BTU content of the coal burned in EU11B68. The permittee shall obtain from the supplier a laboratory analysis of the coal ash, sulfur, and BTU content for each bulk shipment. The permittee shall also record the date received, source of coal and shipper, and tons received. At least once per calendar year, the permittee shall have an analysis performed of the coal sulfur, ash, and BTU content. This analysis shall be independent of the analyses received from the coal supplier with each shipment. The determination of coal sulfur content shall be carried out in accordance with one of the following procedures: ASTM Method 3177-75 or ASTM Method D4239 or an alternative method approved by the AQD District Supervisor. [2] **(R 336.1201, R 336.1213(3),40 CFR Part 60, Subpart Db)**

7. The permittee shall obtain and keep records of sulfur, ash, and Btu content of the TDF burned in EU11B68. A minimum of twice per year the permittee shall obtain (independently or from the supplier) a laboratory analysis

of the ash, sulfur, and BTU content. The permittee shall also record the date received, source, shipper and tons received. At least once per year, the permittee shall have an analysis performed of the TDF for sulfur, ash, arsenic, cadmium, total chromium, lead, manganese, mercury, nickel, zinc and Btu content. The TDF analysis shall be carried out in accordance by an approved ASTM Method or an alternative method approved by the AQD District Supervisor. Records shall be kept on file for a period of at least five years and made available to the Department upon request. [2] **(R 336.1201, R 336.1205)**

8. Monitoring and recording of emissions and operating information from EU11B68 is required to comply with federal Standards of Performance for New Stationary Sources as specified in 40 CFR Part 60, Subparts A and D. [2] **(R 336.1201, 40 CFR Part 60, Subparts A and D)**

9. The permittee shall comply with applicable oxides of nitrogen monitoring and recordkeeping provisions as specified in Rule 801, during years when the boiler meets the definition of a fossil fuel fired emission unit, per the definition in R 336.1801(1)(b).[1] **(R 336.1801)**

10. The permittee shall calculate and keep records of PM_{10}, $PM_{2.5}$, SO_2, NOx, CO, H_2SO_4, and CO_2e emission rates from EU11B68, in tons per year on a calendar year basis. The recordkeeping period shall begin on the first day of the month during which the EU11B68, with OFA installed, commences operation and shall continue for 5 years. The calculations and records shall be kept in a format acceptable to the Department. The permittee shall keep all records on file and make them available to the Department upon request. [2] **(R 336.1205, R 336.1901, R 336.2802(4)(d), R 336.2818, 40 CFR 52.21)**

11. The permittee shall obtain and keep records of the chorine (or total halogens) and Btu content of the engineered non-waste fuel pellets burned in EU11B68. When burning engineered non-waste fuel pellets in EU11B68, the permittee shall obtain (independently or from the supplier) a monthly laboratory analysis of the chlorine and BTU content. The permittee shall also record the date received, source, shipper and tons of engineered non-waste fuel pellets received. The permittee shall monitor and record the supplier analysis for engineered non-waste fuel pellets received. Analysis shall contain the sample date, results of the sampling analysis performed, and the analytical methods used. [2] **(R 336.1205(1)(a), R 336.1205(3), R 336.1225)**

12. The permittee shall monitor and record, the tons of engineered non-waste fuel pellets used as fuel for EU11B68, on a monthly and 12-month rolling time period basis. The permittee shall use a monitoring and recordkeeping method acceptable to the AQD District Supervisor and make all records available to the Department upon request. [2] **(R 336.1205(1)(a), R 336.1205 (3), R 336.1225)**

13. The permittee shall monitor and record the percent of engineered non-waste fuel pellets, on a heat input basis, used as fuel for EU11B68, on a monthly and 12-month rolling time period basis. The permittee shall use a monitoring and recordkeeping method acceptable to the AQD District Supervisor and make all records available to the Department upon request.[2] **(R 336.1205(1)(a), R 336.1205 (3), R 336.1225)**

14. The permittee shall keep and maintain all sampling and/or testing results for the engineered non-waste fuel pellets used as fuel for EU11B68, for a period of five years. The permittee shall use a monitoring and recordkeeping method acceptable to the AQD District Supervisor and make all records available to the Department upon request. [2] **(R 336.1205(1)(a), R 336.1205(3), R 336.1225)**

15. The permittee shall utilize COM-recorded opacity as an indicator of the proper operation of the electrostatic precipitator. The indicator range of opacity defining proper function of the ESP is 0 to 20%. Six-minute average values shall be based on 24 or more equally spaced instantaneous opacity measurements per six-minute period. The COM shall be calibrated in accordance with 40 CFR, Part 60, Subpart A and Appendix B of 40 CFR Part 60. **(40 CFR 64.6(c)(1)(i and ii))**

16. The opacity monitor shall continuously monitor opacity. The monitor shall be calibrated annually. **(40 CFR 64.6(c)(1)(iii))**

17. An excursion is a departure from the indicator range of 0 to 20% opacity based on a 6 minute averaging time, except for one six-minute average between 20 and 27% per hour as allowed per general condition A.11. **(40 CFR 64.6(c)(2))**

18. Upon detecting an excursion or exceedance, the owner or operator shall restore operation of the pollutant-specific emissions unit (including the control device and associated capture system) to its normal or usual manner of operation as expeditiously as practicable in accordance with good air pollution control practices for minimizing emissions. The response shall include minimizing the period of any startup, shutdown or malfunction and taking any necessary corrective actions to restore normal operation and prevent the likely recurrence of the cause of an excursion or exceedance (other than those caused by excused startup or shutdown conditions). **(40 CFR 64.7(d))**

19. Except for, as applicable, monitoring malfunctions, associated repairs, and required quality assurance or control activities (including, as applicable, calibration checks and required zero and span adjustments), the owner or operator shall conduct all monitoring in continuous operation (or shall collect data at all required intervals) at all times that the pollutant-specific emissions unit is operating. Data recorded during monitoring malfunctions, associated repairs, and required quality assurance or control activities shall not be used for purposes of this part, including data averages and calculations or fulfilling a minimum data availability requirement, if applicable. The owner or operator shall use all the data collected during all other periods in assessing the operation of the control device and associated control system. A monitoring malfunction is any sudden, infrequent, not reasonably preventable failure of the monitoring to provide valid data. Monitoring failures that are caused in part by poor maintenance or careless operation are not malfunctions.
(40 CFR 64.6(c)(3), 64.7(c))

20. The permittee shall properly maintain the monitoring system, including keeping necessary parts for routine repair of the monitoring equipment. **(40 CFR 64.7(b))**

21. The permittee shall maintain records of monitoring data, monitor performance data, corrective actions taken, any written quality improvement plan and any activities undertaken to implement a quality improvement plan, and other information such as data used to document the adequacy of monitoring, or records of monitoring maintenance or corrective actions. **(40 CFR 64.9(b)(1))**

22. The permittee shall comply with the sludge mercury monitoring requirements of 40 CFR 61.54 and 40 CFR 61.55 or other approved method. **(40 CFR 61.54, 40 CFR 61.55)**
23. Reference FGBMACTB09B11 for Monitoring/Recordkeeping requirements.
~~NA~~

See Appendix 7

VII. REPORTING

1. Prompt reporting of deviations pursuant to General Conditions 21 and 22 of Part A. **(R 336.1213(3)(c)(ii))**

2. Semiannual reporting of monitoring and deviations pursuant to General Condition 23 of Part A. The report shall be postmarked or received by the appropriate AQD District Office by March 15 for reporting period July 1 to December 31 and September 15 for reporting period January 1 to June 30. **(R 336.1213(3)(c)(i))**

3. ~~3.~~ Annual certification of compliance pursuant to General Conditions 19 and 20 of Part A. The report shall be postmarked or received by the appropriate AQD District Office by March 15 for the previous calendar year. **(R 336.1213(4)(c))**

4. Quarterly reporting of the continuous emission monitoring for opacity and nitrogen oxides emissions from EU11B68. **(R 336.1213(3), 40 CFR Part 60, Subpart D)**

5. The permittee shall comply with applicable oxides of nitrogen reporting and compliance certification requirements as specified in Rule 801, during years when the boiler meets the definition of a fossil fuel fired emission unit, per the definition in R 336.1801(1)(b).[1] **(R 336.1801)**

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6. The permittee shall calculate and keep records of the annual emissions of PM_{10}, $PM_{2.5}$, SO_2, NO_X, H_2SO_4, CO, and CO_2e from EU11B68 in tons per year on a calendar year basis, as described in Appendix 9. Calculations and recordkeeping shall begin the month in which the operation of EU11B68 resumes with OFA installed and shall continue for 5 years. The permittee shall submit this information to the AQD Permit Section Supervisor within 60 days following the end of each reporting year if both the following occur:
   a. The calendar year actual emissions of PM_{10}, $PM_{2.5}$, SO_2, NO_X, H_2SO_4, CO, and CO_2e exceed the baseline actual emissions (BAE) by a significant amount as defined in R 336.1119(e), and
   b. The calendar year actual emissions differ from the pre-construction projection. The pre-construction projection is the sum of the projected actual emissions from each existing emission unit included in the Actual-to-Projected-Actual Applicability Test used for EU11B68.
7. The report shall contain the name, address, and telephone number of the facility; the annual emissions as calculated pursuant to SC VI.9 and Appendix 9b; and any other information the owner or operator wishes to include (i.e., an explanation why emissions differ from the pre-construction projection). **(R 336.2818, 40 CFR 52.21 (r)(6)(c)(iii))**

8. Each semiannual report of monitoring and deviations as specified under the CAM requirements shall include summary information on monitor downtime. If there were no periods of monitor downtime in the reporting period, then this report shall include a statement that there were no periods of monitor downtime. **(40 CFR 64.9(a)(2)(ii))**

9. Each semiannual report of monitoring deviations as specified under the CAM requirements shall include summary information on the number, duration, and cause of CAM exceedances/excursions in the reporting period; and the corrective actions taken in response. If there were no excursions/exceedances in the reporting period, then this report shall include a statement that there were no excursions/exceedances. **(40 CFR 64.9(a)(2)(i))**

10. The permittee shall complete two complete test protocols to the AQD, one to the Technical Programs Unit Supervisor and one to the District Supervisor for approval at least 30 days prior to the anticipated test. The protocol shall describe the test method(s) and the maximum routine operating conditions, including targets for key operational parameters associated with air pollution control equipment to be monitored and recorded during testing. **(R 336.2001(3))**

11. The permittee shall notify the AQD Technical Programs Unit Supervisor and the District Supervisor no less than 7 days prior to the anticipated test date. **(R 336.2001(4))**
    The permittee shall submit two complete test reports to the AQD, one to the Technical Programs Unit Supervisor and one to the District Supervisor, within 60 days following the last date of the test. **(R 336.2001(5))**

12. Prompt reporting of deviations pursuant to General Conditions 21 and 22 of Part A. **(R 336.1213(3)(c)(ii))**

13. Semiannual reporting of monitoring and deviations pursuant to General Condition 23 of Part A. The report shall be postmarked or received by the appropriate AQD District Office by March 15 for reporting period July 1 to December 31 and September 15 for reporting period January 1 to June 30. **(R 336.1213(3)(c)(i))**

14. Annual certification of compliance pursuant to General Conditions 19 and 20 of Part A. The report shall be postmarked or received by the appropriate AQD District Office by March 15 for the previous calendar year. **(R 336.1213(4)(c))**

15. Reference FGBMACTB09B11 for Reporting requirements.

See Appendix 8

VIII. STACK/VENT RESTRICTION(S)

The exhaust gases from the stacks listed in the table below shall be discharged unobstructed vertically upwards to the ambient air unless otherwise noted:

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Stack & Vent ID	Maximum Exhaust Dimensions (inches)	Minimum Height Above Ground (feet)	Underlying Applicable Requirements
~~NA~~	~~NA~~	~~NA~~	~~NA~~
1. SV68033S	132[2]	330[2]	**R 336.1225** **R 336.2803** **R 336.2804** **40 CFR 52.21 (c)(d)**

IX. OTHER REQUIREMENT(S)

1. ~~1.~~ The air cleaning devices shall be maintained and operated in a satisfactory manner and in accordance with the Michigan Air Pollution Control Rules and existing law. The permittee shall carry out an Inspection and Maintenance Program, including keeping of records of inspections done, problems found, repairs done, and/or corrective action taken. **(R 336.1301, R 336.1331, R 336.1910, R 336.1213(3))**

2. Permittee shall comply with all applicable requirements of 40 CFR Part 64. **(40 CFR Part 64)**

3. If the permittee identifies a failure to achieve compliance with an emission limitation or standard for which the approved monitoring did not provide an indication of an excursion or exceedance while providing valid data, or the results of compliance or performance testing document a need to modify the existing indicator ranges or designated conditions, the permittee shall promptly notify the AQD and if necessary, submit a proposed modification of the CAM Plan to address the necessary monitoring changes. Such a modification may include but is not limited to, reestablishing indicator ranges or designated conditions, modifying the frequency of conducting monitoring and collecting data, or the monitoring of additional parameters. **(40 CFR 64.7(e))**

4. There shall be no visible emissions greater than 5% from the coal storage pile and the EU11B68 equipment for handling solid fuels and ash.[2] **(R 336.1301, R 336.1201)**

~~1. There shall be no visible emissions greater than 5% from the coal storage pile and the EU11B68 equipment for handling solid fuels and ash.~~[2] ~~**(R 336.1301, R 336.1201)**~~

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Footnotes:
[1] This condition is state only enforceable and was established pursuant to Rule 201(1)(b).
[2] This condition is federally enforceable and was established pursuant to Rule 201(1)(a).

FGSB14 – Chip Surge Bins
FLEXIBLE GROUP CONDITIONS

DESCRIPTION

The Chip Surge Bin System (FGSB14) has two emission units: #1 Chip Surge Bin (EU1SB14) and #2 Chip Surge Bin (EU2SB14).

Emission Unit: EU1SB14, EU2SB14

POLLUTION CONTROL EQUIPMENT

#1 Chipper Cyclone, #2 Chipper Cyclone

I. EMISSION LIMIT(S)

Pollutant	Limit	Time Period/ Operating Scenario	Equipment	Monitoring/ Testing Method	Underlying Applicable Requirements
1. PM	0.10 lb / 1000 lbs of exhaust gases, measured at operating conditions[2]	Weekly	EU1SB14 EU2SB14	SC VI.1	**R 336.1201** **R 336.1331**

II. MATERIAL LIMIT(S)

Material	Limit	Time Period/ Operating Scenario	Equipment	Monitoring/ Testing Method	Underlying Applicable Requirements
NA	NA	NA	NA	NA	NA

III. PROCESS/OPERATIONAL RESTRICTION(S)

NA

IV. DESIGN/EQUIPMENT PARAMETER(S)

NA

V. TESTING/SAMPLING

Records shall be maintained on file for a period of five years. **(R 336.1213(3)(b)(ii))**

NA

See Appendix 5

VI. MONITORING/RECORDKEEPING

Records shall be maintained on file for a period of five years. **(R 336.1213(3)(b)(ii))**

1. The permittee shall visually inspect and record observations of emissions from the cyclone exhausts while the process is operating. These inspections shall be conducted on a weekly basis, or in accordance with an alternate schedule approved by the AQD. **(R 336.1213(3))**

See Appendix 7

VII. REPORTING

1. Prompt reporting of deviations pursuant to General Conditions 21 and 22 of Part A. **(R 336.1213(3)(c)(ii))**

2. Semiannual reporting of monitoring and deviations pursuant to General Condition 23 of Part A. The report shall be postmarked or received by the appropriate AQD District Office by March 15 for reporting period July 1 to December 31 and September 15 for reporting period January 1 to June 30. **(R 336.1213(3)(c)(i))**

3. Annual certification of compliance pursuant to General Conditions 19 and 20 of Part A. The report shall be postmarked or received by the appropriate AQD District Office by March 15 for the previous calendar year. **(R 336.1213(4)(c))**

See Appendix 8

VIII. STACK/VENT RESTRICTION(S)

The exhaust gases from the stacks listed in the table below shall be discharged unobstructed vertically upwards to the ambient air unless otherwise noted:

Stack & Vent ID	Maximum Exhaust Dimensions (inches)	Minimum Height Above Ground (feet)	Underlying Applicable Requirements
NA	NA	NA	NA

IX. OTHER REQUIREMENT(S)

1. The air cleaning devices shall be maintained and operated in a satisfactory manner and in accordance with the Michigan Air Pollution Control Rules and existing law. The permittee shall carry out an Inspection and Maintenance Program, including keeping of records of inspections done, problems found, repairs done, and/or corrective action taken. **(R 336.1301, R 336.1331, R 336.1910, R 336.1213(3))**

Footnotes:
[1] This condition is state only enforceable and was established pursuant to Rule 201(1)(b).
[2] This condition is federally enforceable and was established pursuant to Rule 201(1)(a).

FGRMP – RMP System
FLEXIBLE GROUP CONDITIONS

DESCRIPTION

The Refiner Mechanical Pulping System (FGRMP) has three emission units: the Chip Silo (EUCS61), the Chip Surge Bin (EUSB61), and Refiner Mechanical Pulping (EURMP61).

Emission Unit: EUCS61, EUSB61, EURMP61

POLLUTION CONTROL EQUIPMENT

Chip Silo Cyclone, Chip Surge Bin Cyclone

I. EMISSION LIMIT(S)

Pollutant	Limit	Time Period/ Operating Scenario	Equipment	Monitoring/ Testing Method	Underlying Applicable Requirements
1. PM	0.10 lb / 1000 lbs of exhaust gas, measured at operating conditions[2]	Weekly	EUCS61 EUSB61 EURMP61	SC VI.1	**R 336.1201 R 336.1331**

II. MATERIAL LIMIT(S)

Material	Limit	Time Period/ Operating Scenario	Equipment	Monitoring/ Testing Method	Underlying Applicable Requirements
NA	NA	NA	NA	NA	NA

III. PROCESS/OPERATIONAL RESTRICTION(S)

1. The permittee shall not produce more than 113,150 tons of Refined Mechanical Pulp (RMP) per year through EURMP61, as determined on a 12 month rolling time period basis. **(R 336.1205(3))**

IV. DESIGN/EQUIPMENT PARAMETER(S)

NA

V. TESTING/SAMPLING

Records shall be maintained on file for a period of five years. **(R 336.1213(3)(b)(ii))**

NA

See Appendix 5

VI. MONITORING/RECORDKEEPING

Records shall be maintained on file for a period of five years. **(R 336.1213(3)(b)(ii))**

1. The permittee shall visually inspect and record observations of emissions from the cyclone exhausts of EUCS61 and EUSB61 while EURMP61 is operating. These inspections shall be conducted on a weekly basis, or in accordance with an alternate schedule approved by the AQD. **(R 336.1213(3))**

2. The permittee shall monitor and record the amount of RMP produced monthly and on a 12 month rolling average in a manner acceptable to the AQD District Supervisor. [2] **(R 336.1205(3))**

See Appendix 7

VII. REPORTING

1. Prompt reporting of deviations pursuant to General Conditions 21 and 22 of Part A. **(R 336.1213(3)(c)(ii))**

2. Semiannual reporting of monitoring and deviations pursuant to General Condition 23 of Part A. The report shall be postmarked or received by the appropriate AQD District Office by March 15 for reporting period July 1 to December 31 and September 15 for reporting period January 1 to June 30. **(R 336.1213(3)(c)(i))**

3. Annual certification of compliance pursuant to General Conditions 19 and 20 of Part A. The report shall be postmarked or received by the appropriate AQD District Office by March 15 for the previous calendar year. **(R 336.1213(4)(c))**

See Appendix 8

VIII. STACK/VENT RESTRICTION(S)

The exhaust gases from the stacks listed in the table below shall be discharged unobstructed vertically upwards to the ambient air unless otherwise noted:

Stack & Vent ID	Maximum Exhaust Dimensions (inches)	Minimum Height Above Ground (feet)	Underlying Applicable Requirements
1. SV-RMP_DrumThick	30[2]	74.8[2]	**R 336.1201**
2. SV-RMP_SecRefine	24[2]	121.8[2]	**R 336.1201**

IX. OTHER REQUIREMENT(S)

1. The air cleaning devices shall be maintained and operated in a satisfactory manner and in accordance with the Michigan Air Pollution Control Rules and existing law. The permittee shall carry out an Inspection and Maintenance Program, including keeping of records of inspections done, problems found, repairs done, and/or corrective action taken. **(R 336.1301, R 336.1331, R 336.1910, R 336.1213(3))**

Footnotes:
[1] This condition is state only enforceable and was established pursuant to Rule 201(1)(b).
[2] This condition is federally enforceable and was established pursuant to Rule 201(1)(a).

FGPAPER – Paper Machine Systems
FLEXIBLE GROUP CONDITIONS

DESCRIPTION

Paper Machine Systems (FGPAPER) includes the #1 Paper Machine (EU1PM32) and associated stock preparation equipment, the #3 Paper Machine (EU3PM07) and associated stock preparation equipment and the #4 Paper Machine (EU4PM64) and associated preparation equipment.

Emission Unit: EU1PM32, EU3PM07, EU4PM64

POLLUTION CONTROL EQUIPMENT

NA

I. EMISSION LIMIT(S)

Pollutant	Limit	Time Period/ Operating Scenario	Equipment	Monitoring/ Testing Method	Underlying Applicable Requirements
1. VOC including additives and/or cleaning solvents	27.51 tpy [2]	12-month rolling average as determined at the end of each calendar month	EU3PM07	SC VI.2	**R 336.1201**
2. VOC including additives and/or cleaning solvents	26.9 tpy*	12-month rolling average as determined at the end of each calendar month	EU4PM64	SC VI.5	**R 336.1205(3) R 336.1225 R 336.1702**
*Emission limit is based on 0.20 pounds VOC per ton of paper produced. [2]					

II. MATERIAL LIMIT(S)

Material	Limit	Time Period/ Operating Scenario	Equipment	Monitoring/ Testing Method	Underlying Applicable Requirements
1. Paper	268,650 tpy[2]	12-month rolling average as determined at the end of each calendar month	EU4PM64	SC VI.4	**R 336.1205(1)(a) R 336.1225 R 336.1702**

III. PROCESS/OPERATIONAL RESTRICTION(S)

1. The permittee shall use only mill supply water, non-direct contact condensates, well water, or white water as sources for EU3PM07. [2] **(R 336.1201)**

IV. DESIGN/EQUIPMENT PARAMETER(S)

NA

V. TESTING/SAMPLING

Records shall be maintained on file for a period of five years. **(R 336.1213(3)(b)(ii))**

NA

See Appendix 5

VI. MONITORING/RECORDKEEPING

Records shall be maintained on file for a period of five years. **(R 336.1213(3)(b)(ii))**

1. On an annual basis, the permittee shall calculate and report the actual emissions of each regulated air pollutant as defined in Rule 212(6) for EU1PM32 utilizing the emissions inventory forms provided by the Department. **(R 336.1212(6), R 336.1213(3))**

2. The permittee shall perform monthly calculations of the 12-month rolling average total VOC emission from EU3PM07 expressed in tons per year to determine compliance with the limitation specified under Emission Limits above. [2] **(R 336.1201, R 336.1213(3))**

3. The permittee shall keep a Material Safety Data Sheet and/or a material specification sheet for all chemical additives used by EU3PM07. At a minimum, these records shall include information regarding the VOC content, density, and solids weight fraction of paper machine additives. [2] **(R 336.1201, R 336.1213(3))**

4. The permittee shall keep, in a satisfactory manner, monthly and 12-month rolling time period paper production from EU4PM64, as required by SC II.1. The permittee shall keep all records on file at the facility and make them available to the Department upon request. **(R 336.1205(1)(a), R 336.1225, R 336.1702)**

5. The permittee shall keep, in a satisfactory manner, monthly and 12-month rolling time period VOC emission calculation records for EU4PM64, as required by SC I.2. The permittee shall keep all records on file at the facility and make them available to the Department upon request. **(R 336.1205(3), R 336.1225, R 336.1702, R 336.1901, R 336.1910, R 336.2802, 40 CFR 52.21)**

6. The permittee shall maintain a current listing from the manufacturer of the chemical composition of each chemical additive used by EU4PM64, including the weight percent of each component. The data may consist of Safety Data Sheets, manufacturer's formulation data, or both as deemed acceptable by the AQD District Supervisor. The permittee shall keep records on file at the facility and make them available to the Department upon request. **(R 336.1225, R 336.1702))**

See Appendix 7

VII. REPORTING

1. Prompt reporting of deviations pursuant to General Conditions 21 and 22 of Part A. **(R 336.1213(3)(c)(ii))**

2. Semiannual reporting of monitoring and deviations pursuant to General Condition 23 of Part A. The report shall be postmarked or received by the appropriate AQD District Office by March 15 for reporting period July 1 to December 31 and September 15 for reporting period January 1 to June 30. **(R 336.1213(3)(c)(i))**

3. Annual certification of compliance pursuant to General Conditions 19 and 20 of Part A. The report shall be postmarked or received by the appropriate AQD District Office by March 15 for the previous calendar year. **(R 336.1213(4)(c))**

See Appendix 8

VIII. STACK/VENT RESTRICTION(S)

The exhaust gases from the stacks listed in the table below shall be discharged unobstructed vertically upwards to the ambient air unless otherwise noted:

Stack & Vent ID	Maximum Exhaust Dimensions (inches)	Minimum Height Above Ground (feet)	Underlying Applicable Requirements
1. SV07049V	18.0[1]	84.0[1]	**R 336.1224**
2. SV07050V	48.0[1]	84.0[1]	**R 336.1224**
3. SV07051V	48.0[1]	84.0[1]	**R 336.1224**
4. SV07052V	36.0[1]	84.0[1]	**R 336.1224**
5. SV07053V	42.0[1]	83.0[1]	**R 336.1224**
6. SV07054V	36.0[1]	84.0[1]	**R 336.1224**
7. SV07056V	24.0[1]	84.0[1]	**R 336.1224**
8. SV07057V	48.0[1]	84.0[1]	**R 336.1224**
9. SV07058V	55.0[1]	84.0[1]	**R 336.1224**
10. SV07061V	36.0[1]	64.0[1]	**R 336.1224**
11. SV07113V	45.0[1]	58.0[1]	**R 336.1224**
12. SV07114V	45.0[1]	58.0[1]	**R 336.1224**
13. SV07116V	7.0[1]	76.0[1]	**R 336.1224**
14. SV07150V	16.0[1]	66.0[1]	**R 336.1224**
15. SV64041V	30.01[1]	94.21[1]	**R 336.1224**
16. SV64031V	60.01[1]	101.71[1]	**R 336.1224**
17. SV64032V	60.01[1]	101.71[1]	**R 336.1224**
18. SV64033V	60.01[1]	101.71[1]	**R 336.1224**
19. SV64118V	36.01[1]	93.21[1]	**R 336.1224**
20. SV64037V	48.01[1]	97.81[1]	**R 336.1224**
21. SV64049V	36.01[1]	94.81[1]	**R 336.1224**
22. SV63006V	30.01[1]	91.51[1]	**R 336.1224**

IX. OTHER REQUIREMENT(S)

NA

Footnotes:
[1] This condition is state only enforceable and was established pursuant to Rule 201(1)(b).
[2] This condition is federally enforceable and was established pursuant to Rule 201(1)(a).

FGCOATER – Paper Machine Coaters
FLEXIBLE GROUP CONDITIONS

DESCRIPTION

The Paper Machine Coaters (FGCOATER) includes 3 emission units: the #1 Coater (EU1C36), the #3 Coater (EU3C27), and the #4 Coater (EU4C65). These coaters are subject to 40 CFR Part 63, Subpart JJJJ.

Emission Unit: EU1C36, EU3C27, EU4C65

POLLUTION CONTROL EQUIPMENT

NA

I. EMISSION LIMIT(S)

Pollutant	Limit	Time Period/ Operating Scenario	Equipment	Monitoring/ Testing Method	Underlying Applicable Requirements
1. VOC	7.8 pph[2]	Monthly average	EU1C36	SC VI.2	**R 336.1201 R 336.1702**
2. VOC	0.00037 lb / lb of coating solids applied[2]	Monthly average	EU1C36	SC VI.5	**R 336.1201 R 336.1610(2)(f)**
3. VOC including additives and/or cleaning solvents,	28.0 tpy[2]	12-month rolling average	EU3C27	SC VI.4	**R 336.1201**
4. VOC	0.00027 lb / lb of coating solids applied[2]	Monthly average	EU3C27	SC VI.5	**R 336.1201 R 336.1610(2)(f)**
5. VOC including additives and/or cleaning solvents	31.5 tpy[2]	12-month rolling average	EU4C65	SC VI.4	**R 336.1201 R 336.1702**
6. VOC	0.00021 lb / lb of coating solids applied[2]	Monthly average	EU4C65	SC VI.5	**R 336.1201 R 336.1702)**
7. HAP*	No more than 20% of the mass of coating solids applied for each month	Monthly average	EU1C36 EU3C27 EU4C65	SC VI.7	**40 CFR 63.3370 (c)(4) 40 CFR 63.3320(b)(3)**
*The permittee has chosen to demonstrate compliance with the limitation of no more than 0.20 kg organic HAP per kg of coating solids, as applied, as a monthly average for all coating materials applied, using volatile organic content as a surrogate for the organic HAP content of coatings.					

II. MATERIAL LIMIT(S)

Material	Limit	Time Period/ Operating Scenario	Equipment	Monitoring/ Testing Method	Underlying Applicable Requirements
NA	NA	NA	NA	NA	NA

III. PROCESS/OPERATIONAL RESTRICTION(S)

NA

IV. DESIGN/EQUIPMENT PARAMETER(S)

NA

V. TESTING/SAMPLING

Records shall be maintained on file for a period of five years. **(R 336.1213(3)(b)(ii))**

NA

See Appendix 5

VI. MONITORING/RECORDKEEPING

Records shall be maintained on file for a period of five years. **(R 336.1213(3)(b)(ii))**

1. The permittee shall keep monthly records of all coating usage amounts and VOC contents and the hours of operation of EU1C36. [2] **(R 336.1201, R 336.1213(3))**

2. The permittee shall perform calculations of the VOC emission rate from EU1C36 expressed in pounds of VOC per hour to determine compliance with the limitation specified under Emission Limits above. [2] **(R 336.1201, R 336.1213(3))**

3. The permittee shall monitor and record the raw material usage rate and the VOC content of each raw material used for EU3C27 and EU4C65. [2] **(R 336.1201, R 336.1610(2)(f))**

4. The permittee shall perform monthly calculations of the 12-month rolling average total VOC emission from EU3C27 and EU4C65 expressed in tons per year to determine compliance with the limitation specified under Emission Limits above. [2] **(R 336.1201, R 336.1213(3))**

5. The permittee shall perform monthly calculations of the monthly average VOC emission from EU1C36, EU3C27 and EU4C65 expressed in pounds of VOC per pound of coating solids applied to determine compliance with the limitation specified under Emission Limits above. [2] **(R 336.1201, R 336.1213(3))**

6. The permittee shall keep a Material Safety Data Sheet and/or a material specification sheet for all raw materials used by EU3C27 and EU4C65. At a minimum, these records shall include information regarding the VOC content, density, and solids weight fraction of each raw material used. [2] **(R 336.1201, R 336.1213(3))**

7. The permittee shall maintain records specified in 40 CFR 62.10(b)(2) for all measurements needed to demonstrate compliance with 40 CFR Part 63, Subpart JJJJ, including monthly average coating material usage, volatile organic content and coating solids content. The as applied volatile organic content and coating solids content shall be determined using the methodologies identified in 40 CFR 63.3360(d)(3).
(**CFR 63.3410(a)(1)(iv)), 40 CFR 63.3360(d)(3))**

See Appendix 7

VII. REPORTING

1. Prompt reporting of deviations pursuant to General Conditions 21 and 22 of Part A. **(R 336.1213(3)(c)(ii))**

2. Semiannual reporting of monitoring and deviations pursuant to General Condition 23 of Part A. The report shall be postmarked or received by the appropriate AQD District Office by March 15 for reporting period July 1 to December 31 and September 15 for reporting period January 1 to June 30. **(R 336.1213(3)(c)(i))**

3. Annual certification of compliance pursuant to General Conditions 19 and 20 of Part A. The report shall be postmarked or received by the appropriate AQD District Office by March 15 for the previous calendar year. **(R 336.1213(4)(c))**

4. The permittee shall submit a semiannual compliance report according to the requirements specified in 40 CFR 63.3400(c)(1) and (2). **(40 CFR 63.3400(c))**

See Appendix 8

VIII. STACK/VENT RESTRICTION(S)

The exhaust gases from the stacks listed in the table below shall be discharged unobstructed vertically upwards to the ambient air unless otherwise noted:

Stack & Vent ID	Maximum Exhaust Dimensions (inches)	Minimum Height Above Ground (feet)	Underlying Applicable Requirements
1. SV36024S	48[1]	98[1]	R 336.1901
2. SV36025S	48[1]	98[1]	R 336.1901
3. SV36026S	48[1]	98[1]	R 336.1901
4. SV36027S	48[1]	98[1]	R 336.1901
5. SV27003V	26 x 261[1]	711[1]	R 336.1224
6. SV27006V	26 x 261[1]	711[1]	R 336.1224
7. SV27009V	26 x 261[1]	711[1]	R 336.1224
8. SV27014V	26 x 261[1]	711[1]	R 336.1224
9. SV27015V	26 x 261[1]	711[1]	R 336.1224
10. SV27017V	29 x 261[1]	651[1]	R 336.1224
11. SV27033V	481[1]	861[1]	R 336.1224
12. SV27034V	481[1]	861[1]	R 336.1224
13. SV27035V	481[1]	861[1]	R 336.1224

IX. OTHER REQUIREMENT(S)

1. There shall be no visible emissions except uncombined water vapor from the #1 Coater coating applicators or their associated dryers.[2] **(R 336.1301, R 336.1201)**

Footnotes:
[1] This condition is state only enforceable and was established pursuant to Rule 201(1)(b).
[2] This condition is federally enforceable and was established pursuant to Rule 201(1)(a).

FGSTARCH – Starch Handling and Make-Down
FLEXIBLE GROUP CONDITIONS

DESCRIPTION

Equipment for the handling and make-down of starch for the paper machines and coaters: The #1 Coater Dry Starch System equipment (EUSS43) includes #1 and #2 Starch Silo, #1 and #2 Starch Day Bins, and #1 and #2 Starch Wet Out Tanks. The #3 Paper Machine Dry Starch System equipment includes #1 Starch Silo (EU1SS08) and the #1 Starch Makedown Tank (EU1M08). The #3 Coater Dry Starch System includes the #2 Starch Silo (EU2SS08), #3 Starch Silo (EU3SS08), and #2 Starch Makedown Tank (EU2M08). The #4 Coater System includes Starch Storage (EUSS66) consisting of #1 and #2 Starch Silos.

Emission Unit: EUSS43, EU1SS08, EUIM08, EU2SS08, EU3SS08, EU2M08, EUSS66

POLLUTION CONTROL EQUIPMENT

For the #1 Coater Dry Starch System, Individual baghouse dust collectors serving #1 and #2 Starch Silos, common baghouse serving #1 and #2 Starch Day Bins, and common baghouse serving #1 and #2 Starch Wet Out Tanks. For the #3 Paper Machine, baghouse dust collectors serve #1 Starch Silo and #1 Starch Makedown Tank. For the #3 Coater Dry Starch System, baghouse dust collectors serve the #2 Starch Silo, #3 Starch Silo, and #2 Starch Makedown Tank. For the #4 Coater System, Individual baghouse dust collectors serve the #1 and #2 Starch Silos.

I. EMISSION LIMIT(S)

Pollutant	Limit	Time Period/ Operating Scenario	Equipment	Monitoring/ Testing Method	Underlying Applicable Requirements
1. PM	0.10 lb / 1000 lbs of exhaust gas, calculated on a dry gas basis. [2]	Weekly	Each baghouse exhaust of FGStarch	SC VI.1	**R 336.1201 R 336.1331**

II. MATERIAL LIMIT(S)

Material	Limit	Time Period/ Operating Scenario	Equipment	Monitoring/ Testing Method	Underlying Applicable Requirements
NA	NA	NA	NA	NA	NA

III. PROCESS/OPERATIONAL RESTRICTION(S)

1. The permittee shall not operate the starch handling equipment unless the baghouse dust collectors are operating properly. [2] **(R 336.1201, R 336.1910)**

IV. DESIGN/EQUIPMENT PARAMETER(S)

NA

V. TESTING/SAMPLING

Records shall be maintained on file for a period of five years. **(R 336.1213(3)(b)(ii))**

NA

See Appendix 5

VI. MONITORING/RECORDKEEPING

Records shall be maintained on file for a period of five years. **(R 336.1213(3)(b)(ii))**

1. The permittee shall visually inspect and record observations of emissions from the baghouse vents during starch transfer when the process occurs during daylight hours. These observations shall be conducted on a weekly basis, or in accordance with an alternate schedule approved by the AQD. **(R 336.1213(3))**

See Appendix 7

VII. REPORTING

1. Prompt reporting of deviations pursuant to General Conditions 21 and 22 of Part A. **(R 336.1213(3)(c)(ii))**

2. Semiannual reporting of monitoring and deviations pursuant to General Condition 23 of Part A. The report shall be postmarked or received by the appropriate AQD District Office by March 15 for reporting period July 1 to December 31 and September 15 for reporting period January 1 to June 30. **(R 336.1213(3)(c)(i))**

3. Annual certification of compliance pursuant to General Conditions 19 and 20 of Part A. The report shall be postmarked or received by the appropriate AQD District Office by March 15 for the previous calendar year. **(R 336.1213(4)(c))**

See Appendix 8

VIII. STACK/VENT RESTRICTION(S)

The exhaust gases from the stacks listed in the table below shall be discharged unobstructed vertically upwards to the ambient air unless otherwise noted:

Stack & Vent ID	Maximum Exhaust Dimensions (inches)	Minimum Height Above Ground (feet)	Underlying Applicable Requirements
NA	NA	NA	NA

IX. OTHER REQUIREMENT(S)

1. The air cleaning devices shall be maintained and operated in a satisfactory manner and in accordance with the Michigan Air Pollution Control Rules and existing law. The permittee shall carry out an Inspection and Maintenance Program, including keeping of records of inspections done, problems found, repairs done, and/or corrective action taken. **(R 336.1301, R 336.1331, R 336.1910, R 336.1213(3))**

Footnotes:

[1] This condition is state only enforceable and was established pursuant to Rule 201(1)(b).
[2] This condition is federally enforceable and was established pursuant to Rule 201(1)(a).

FGBBKRAFT – Kraft Mill Subpart BB Systems
FLEXIBLE GROUP CONDITIONS

DESCRIPTION

Kraft Pulp Mill Subpart BB Systems (FGBBKRAFT) include the following: The Digester System (EUBB22) consists of batch digesters, blow tanks, and a blowheat condensing system. The Brownstock System (EUBB23) processes brown pulp from the digester blow tanks and includes the knotters, brownstock washers, and associated vacuum pumps and filtrate tanks. The Brownstock System is used for final treatment of Kraft pulping process condensates regulated under the Standards for Kraft Pulping Process Condensates 40 CFR 63.446 (see EUCOND - Condensate Collection and Treatment System). The Steam Stripping System (EUBB33) consists of a steam stripper column and reflux condenser used to strip total reduced sulfur (TRS) compounds from condensate streams from various processes in the Kraft pulp mill. The Steam Stripping System is also used to pre-treat kraft pulping process condensates regulated under the Standards for Kraft Pulping Process Condensates 40 CFR 63.446 (see EUCOND - Condensate Collection and Treatment System). The Evaporator System (EUBB05) consists of a multiple-effect evaporator and associated condensers and hotwell used to concentrate the spent cooking liquid that is separated from the pulp (black liquor).

Emission Unit: EUBB22, EUBB23, EUBB33, EUBB05

POLLUTION CONTROL EQUIPMENT

Gases from the EUBB22 Digester System, the EUBB33 Steam Stripping System, and the EUBB05 Evaporator System are routed to the EULVHC closed vent gas collection system and destroyed in the Thermal Oxidizer (EUOC33) or the Lime Kiln (EULK15) as a backup. Gases from the EUBB23 Brownstock System and the EUBB22 Digester System digester domes and capping valves are routed to the EUHVLC closed vent gas collection system and destroyed in Chemical Recovery Furnace (EURF15).

I. EMISSION LIMIT(S)

Pollutant	Limit	Time Period/ Operating Scenario	Equipment	Monitoring/ Testing Method	Underlying Applicable Requirements
1. Total Reduced Sulfur	5 ppm by volume on a dry basis, corrected to 10% oxygen, based upon a 12-hour average*	Approved Plan	FGBBKRAFT	Section III.1	**40 CFR 60.283 40 CFR 60.284(d)(3) 40 CFR 60.283(a)(1)(ii) 40 CFR 60.283(a)(1)(iii)**

*This limit applies unless the gases are combusted in either :
a. A recovery furnace, [2] or
b. The gases are combusted in a ~~themal~~thermal oxidizer or a lime kiln, and are subjected to a minimum temperature of 1200 F for at least 0.5 seconds. [2]

II. MATERIAL LIMIT(S)

Material	Limit	Time Period/ Operating Scenario	Equipment	Monitoring/ Testing Method	Underlying Applicable Requirements
NA	NA	NA	NA	NA	NA

III. PROCESS/OPERATIONAL RESTRICTION(S)

1. The permittee shall not operate the EUBB22, EUBB33, or EUBB05 Systems unless the gases are properly collected and oxidized in a properly installed and operated control system consisting of either the Thermal Oxidizer (EUOC33) followed by the packed scrubber or the Lime Kiln (EULK15) as a backup incineration device. EUBB23 Brownstock System gases and EUBB22 Digester System gases from the digester domes and capping valves must be properly collected and combusted in the #10 Recovery Furnace (EURF15). [2] **(R 336.1201, R 336.1910, 40 CFR 60.283(a)(1)(ii) and 40 CFR 60.283(a)(1)(iii))**

IV. DESIGN/EQUIPMENT PARAMETER(S)

NA

V. TESTING/SAMPLING

Records shall be maintained on file for a period of five years. **(R 336.1213(3)(b)(ii))**

NA

See Appendix 5

VI. MONITORING/RECORDKEEPING

Records shall be maintained on file for a period of five years. **(R 336.1213(3)(b)(ii))**

NA

See Appendix 7

VII. REPORTING

1. Prompt reporting of deviations pursuant to General Conditions 21 and 22 of Part A. **(R 336.1213(3)(c)(ii))**

2. Semiannual reporting of monitoring and deviations pursuant to General Condition 23 of Part A. The report shall be postmarked or received by the appropriate AQD District Office by March 15 for reporting period July 1 to December 31 and September 15 for reporting period January 1 to June 30. **(R 336.1213(3)(c)(i))**

3. Annual certification of compliance pursuant to General Conditions 19 and 20 of Part A. The report shall be postmarked or received by the appropriate AQD District Office by March 15 for the previous calendar year. **(R 336.1213(4)(c))**

See Appendix 8

VIII. STACK/VENT RESTRICTION(S)

The exhaust gases from the stacks listed in the table below shall be discharged unobstructed vertically upwards to the ambient air unless otherwise noted:

Stack & Vent ID	Maximum Exhaust Dimensions (inches)	Minimum Height Above Ground (feet)	Underlying Applicable Requirements
NA	NA	NA	NA

IX. OTHER REQUIREMENT(S)

NA

Footnotes:
[1] This condition is state only enforceable and was established pursuant to Rule 201(1)(b).
[2] This condition is federally enforceable and was established pursuant to Rule 201(1)(a).

FGLVHC – LVHC System
FLEXIBLE GROUP CONDITIONS

DESCRIPTION

The LVHC System (FGLVHC) consists of a collection of equipment regulated by 40 CFR Part 63, Subpart S including the digesters, turpentine recovery, evaporator, steam stripping system, and associated equipment which vent to the LVHC gas collection system. Emission Units include: Evaporator NSPS Devices (EUBB05), Digester Other Devices (EUOT22), Digester NSPS Devices (EUBB22), and Miscellaneous Turpentine Handling Devices (EUMT22), Steam Stripping NSPS Devices (EUBB33) and Miscellaneous Condensate Stripping System Devices (EUMC33).

Emission Units: EUBB05, EUOT22, EUBB22, EUMT22, EUBB33, EUMC33

POLLUTION CONTROL EQUIPMENT

LVHC gases from FGLVHC are collected in a closed vent collection system and incinerated in the Thermal Oxidizer (EUOC33) or the Lime Kiln (EULK15) as a backup incineration device.

I. EMISSION LIMIT(S)

Pollutant	Limit	Time Period/ Operating Scenario	Equipment	Monitoring/ Testing Method	Underlying Applicable Requirements
1. Total HAP measured as methanol	See Process/ Operational Restrictions(s) below	Test Protocol	FGLVHC	SC VI.1	**40 CFR 63.443(d)**

II. MATERIAL LIMIT(S)

Material	Limit	Time Period/ Operating Scenario	Equipment	Monitoring/ Testing Method	Underlying Applicable Requirements
NA	NA	NA	NA	NA	NA

III. PROCESS/OPERATIONAL RESTRICTION(S)

1. The total HAP emissions from FGLVHC be enclosed and vented into a closed-vent system and routed to a control device that meets the requirements specified in 40 CFR 63.443(d). **(40 CFR 63.443(c))**

2. Each enclosure and closed-vent system used for capturing and transporting vent streams that contain HAP shall meet the applicable requirements specified in "Standards for Enclosures and Closed-Vent Systems." **(40 CFR 63.450)**

3. The permittee shall direct total HAP emissions from the closed-vent system to a control device that meets one of the following requirements:
   a. Reduces total HAP emissions by 98% or more by weight; or **(40 CFR 63.443(d)(1))**
   b. Reduces the total HAP concentration at the outlet of the thermal oxidizer to 20 parts per million or less by volume, corrected to 10% oxygen on a dry basis; or **(40 CFR 63.443(d)(2))**
   c. Reduces total HAP emissions using a thermal oxidizer designed and operated at a minimum temperature of 1600°F and a minimum residence time of 0.75 seconds; or **(40 CFR 63.443(d)(3))**
   d. Reduces total HAP using a boiler, lime kiln, or recovery furnace by introducing the HAP emission stream with the primary fuel or into the flame zone. **(40 CFR 63.443(d)(4))**

4. Records shall be maintained for all periods of excess emissions. Periods of excess emissions from FGLVHC are not violations of 63.443(c) and (d) provided that the time of excess emissions divided by the total process operating time in a semiannual reporting period does not exceed one (1) percent for control devices used to reduce the total HAP emissions from FGLVHC. **(40 CFR 63.443(e)(1))**

IV. DESIGN/EQUIPMENT PARAMETER(S)

NA

V. TESTING/SAMPLING

Records shall be maintained on file for a period of five years. **(R 336.1213(3)(b)(ii))**

1. Applicable test requirements, methods, and procedures as specified in 40 CFR Part 63, Subparts A and S. **(40 CFR 63.7, 40 CFR 63.457, R 336.1213(3))**

See Appendix 5

VI. MONITORING/RECORDKEEPING

Records shall be maintained on file for a period of five years. **(R 336.1213(3)(b)(ii))**

1. Each enclosure and closed-vent system used to comply with the 40 CFR 63.450 “Standards for Enclosures and Closed-Vent Systems” shall comply with the inspection requirements as specified in 40 CFR 63.453(k). **(40 CFR 63.453(k))**

2. Applicable monitoring and recordkeeping provisions as specified in 40 CFR Part 63, Subpart S. **(40 CFR 63.453, 40 CFR 63.454, R 336.1213(3))**

See Appendix 7

VII. REPORTING

1. Prompt reporting of deviations pursuant to General Conditions 21 and 22 of Part A. **(R 336.1213(3)(c)(ii))**

2. Semiannual reporting of monitoring and deviations pursuant to General Condition 23 of Part A. The report shall be postmarked or received by the appropriate AQD District Office by March 15 for reporting period July 1 to December 31 and September 15 for reporting period January 1 to June 30. **(R 336.1213(3)(c)(i))**

3. Annual certification of compliance pursuant to General Conditions 19 and 20 of Part A. The report shall be postmarked or received by the appropriate AQD District Office by March 15 for the previous calendar year. **(R 336.1213(4)(c))**

4. Applicable reporting requirements as specified in 40 CFR Part 63, Subpart S. **(40 CFR 63.455, R 336.1213(3))**

See Appendix 8

VIII. STACK/VENT RESTRICTION(S)

The exhaust gases from the stacks listed in the table below shall be discharged unobstructed vertically upwards to the ambient air unless otherwise noted:

Stack & Vent ID	Maximum Exhaust Dimensions (inches)	Minimum Height Above Ground (feet)	Underlying Applicable Requirements
NA	NA	NA	NA

IX. OTHER REQUIREMENT(S)

1. The permittee must comply with the applicable requirements of 40 CFR Part 63, Subpart A – General Provisions, as indicated in 40 CFR Part 63, Table 1 to Subpart S – General Provisions Applicability to Subpart S. **(40 CFR 63.440(g))**

Footnotes:
[1] This condition is state only enforceable and was established pursuant to Rule 201(1)(b).
[2] This condition is federally enforceable and was established pursuant to Rule 201(1)(a).

FGHVLC – HVLC System
FLEXIBLE GROUP CONDITIONS

DESCRIPTION

The HVLC System (FGHVLC) consists of a collection of equipment regulated by 40 CFR Part 63, Subpart S including the following: knotters, brownstock washers, brownstock filtrate tanks, digester fugitive gases, and black liquor storage and processing tanks. Emission Units include: EUBB22 digester capping valves, Brownstock NSPS Devices (EUBB23) and Miscellaneous Evaporator System Devices (EUME05).

Emission Units: EUBB22, EUBB23, EUME05

POLLUTION CONTROL EQUIPMENT

HVLC gases from FGHVLC are collected in a closed vent system and destroyed in the Chemical Recovery Furnace (EURF15).

I. EMISSION LIMIT(S)

Pollutant	Limit	Time Period/ Operating Scenario	Equipment	Monitoring/ Testing Method	Underlying Applicable Requirements
1. Total HAP measured as methanol	See Process/ Operational Restrictions(s) below	Test Protocol	FGHVLC	SC VI.1	**40 CFR 63.443(d)**

II. MATERIAL LIMIT(S)

Material	Limit	Time Period/ Operating Scenario	Equipment	Monitoring/ Testing Method	Underlying Applicable Requirements
NA	NA	NA	NA	NA	NA

III. PROCESS/OPERATIONAL RESTRICTION(S)

1. The total HAP emissions from FGHVLC shall be enclosed and vented into a closed-vent system and routed to a control device that meets the requirements specified in 40 CFR 63.443(d). **(40 CFR 63.443(c))**

2. Each enclosure and closed-vent system used for capturing and transporting vent streams that contain HAP shall meet the applicable requirements specified in “Standards for Enclosures and Closed-Vent Systems.” **(40 CFR 63.450)**

3. The permittee shall direct total HAP emissions from the closed-vent system to a control device that meets one of the following requirements:
   a. Reduces total HAP emissions by 98% or more by weight; or **(40 CFR 63.443(d)(1))**
   b. Reduces the total HAP concentration at the outlet of the thermal oxidizer to 20 parts per million or less by volume, corrected to 10% oxygen on a dry basis; or **(40 CFR 63.443(d)(2))**
   c. Reduces total HAP emissions using a thermal oxidizer designed and operated at a minimum temperature of 1600°F and a minimum residence time of 0.75 seconds; or **(40 CFR 63.443(d)(3))**
   d. Reduces total HAP using a boiler, lime kiln, or recovery furnace by introducing the HAP emission stream with the primary fuel or into the flame zone. **(40 CFR 63.443(d)(4))**

4. Records shall be maintained for all periods of excess emissions. Periods of excess emissions from FGHVLC are not violations of 63.443(c) and (d) provided that the time of excess emissions divided by the total process operating time in a semiannual reporting period does not exceed four (4) percent for control devices used to reduce the total HAP emissions from FGHVLC. **(40 CFR 63.443(e)(2))**

IV. DESIGN/EQUIPMENT PARAMETER(S)

NA

V. TESTING/SAMPLING

Records shall be maintained on file for a period of five years. **(R 336.1213(3)(b)(ii))**

1. Applicable test requirements, methods, and procedures as specified in 40 CFR Part 63, Subparts A and S. **(40 CFR 63.7, 40 CFR 63.457, R 336.1213(3))**

See Appendix 5

VI. MONITORING/RECORDKEEPING

Records shall be maintained on file for a period of five years. **(R 336.1213(3)(b)(ii))**

1. Each enclosure and closed-vent system used to comply with the 40 CFR 63.450 "Standards for Enclosures and Closed-Vent Systems" shall comply with the inspection requirements as specified in 40 CFR 63.453(k). **(40 CFR 63.453(k))**

2. Applicable monitoring and recordkeeping provisions as specified in 40 CFR Part 63, Subpart S. **(40 CFR 63.453, 40 CFR 63.454, R 336.1213(3))**

See Appendix 7

VII. REPORTING

1. Prompt reporting of deviations pursuant to General Conditions 21 and 22 of Part A. **(R 336.1213(3)(c)(ii))**

2. Semiannual reporting of monitoring and deviations pursuant to General Condition 23 of Part A. The report shall be postmarked or received by the appropriate AQD District Office by March 15 for reporting period July 1 to December 31 and September 15 for reporting period January 1 to June 30. **(R 336.1213(3)(c)(i))**

3. Annual certification of compliance pursuant to General Conditions 19 and 20 of Part A. The report shall be postmarked or received by the appropriate AQD District Office by March 15 for the previous calendar year. **(R 336.1213(4)(c))**

4. Applicable reporting requirements as specified in 40 CFR Part 63, Subpart S. **(40 CFR 63.455, R 336.1213(3))**

See Appendix 8

VIII. STACK/VENT RESTRICTION(S)

The exhaust gases from the stacks listed in the table below shall be discharged unobstructed vertically upwards to the ambient air unless otherwise noted:

Stack & Vent ID	Maximum Exhaust Dimensions (inches)	Minimum Height Above Ground (feet)	Underlying Applicable Requirements
NA	NA	NA	NA

IX. OTHER REQUIREMENT(S)

1. The permittee must comply with the applicable requirements of 40 CFR Part 63, Subpart A – General Provisions, as indicated in 40 CFR Part 63, Table 1 to Subpart S – General Provisions Applicability to Subpart S. **(40 CFR 63.440(g))**

Footnotes:
[1] This condition is state only enforceable and was established pursuant to Rule 201(1)(b).
[2] This condition is federally enforceable and was established pursuant to Rule 201(1)(a).

FGTO33 – Thermal Oxidizer System
FLEXIBLE GROUP CONDITIONS

DESCRIPTION

The Thermal Oxidizer System (FGTO33) includes two emission units: The Thermal Oxidizer (EUOC33), which is a dedicated incineration device for gases from the FGLVHC System and the Soda Ash Storage Tank (EUSA33).

Emission Unit: EUOC33, EUSA33

POLLUTION CONTROL EQUIPMENT

Exhaust from the Thermal Oxidizer (EUOC33) is routed through a packed scrubber which utilizes a soda ash scrubbing solution to control sulfur dioxide emissions.

I. EMISSION LIMIT(S)

Pollutant	Limit	Time Period/ Operating Scenario	Equipment	Monitoring/ Testing Method	Underlying Applicable Requirements
1. PM	0.10 lb / 1000 lbs of exhaust gas, measured at operating conditions[2]	Approved Plan	Each exhaust of EUSA33	SC IX.1	**R 336.1201** **R 336.1331**
2. SO_2	55 ppm dry volume*based on a 12-hour averaging time	Test Protocol	EUOC33	SC V.3	**R 336.1201**
3. SO_2	12.0 pph* based on a 12-hour averaging time	Test Protocol	EUOC33	SC V.3	**R 336.1201**
4. Total HAP measured as methanol	See Process/Operational Restrictions below	Test Protocol	EUOC33	SC V.1 SC V.2	**40 CFR 63.443(d)**
5. Total Reduced Sulfur**	5 ppm dry volume* based on a 12-hour averaging time	Test Protocol	EUOC33	SC V.3	**R 336.1201**
6. Total Reduced Sulfur**	0.58 pounds per hour* based on a 12-hour averaging time	Test Protocol	EUOC33	SC V.3	**R 336.1201**
7. Visible Emissions	No visible emissions, except for uncombined water vapor[2]	Approved Plan	EUOC33	SC IX.1	**R 336.1201** **R 336.1301**

Pollutant	Limit	Time Period/ Operating Scenario	Equipment	Monitoring/ Testing Method	Underlying Applicable Requirements
* Whenever the noncondensable gases from the Evaporator System, Steam Stripping System, and Digester System are oxidized in the Thermal Oxidizer followed by the packed scrubber. [2] ** Measured as hydrogen sulfide					

II. MATERIAL LIMIT(S)

Material	Limit	Time Period/ Operating Scenario	Equipment	Monitoring/ Testing Method	Underlying Applicable Requirements
NA	NA	NA	NA	NA	NA

III. PROCESS/OPERATIONAL RESTRICTION(S)

1. When noncondensable gases from the Evaporator System, Steam Stripping System, and Digester System are passed through the Thermal Oxidizer followed by the packed scrubber, a minimum operating temperature of 1200°F based upon a 5-minute averaging time measured at the point of incineration of noncondensable gases and a minimum retention time of 0.5 seconds shall be maintained. **(40 CFR 60.283(a)(1))**

2. The permittee shall direct total HAP emissions from the closed-vent system to a control device that meets one of the following requirements:
   a. Reduces total HAP emissions by 98% or more by weight; [2] or **(40 CFR 63.443(d)(1))**
   b. Reduces the total HAP concentration at the outlet of the Thermal Oxidizer to 20 parts per million or less by volume, corrected to 10% oxygen on a dry basis; or **(40 CFR 63.443(d)(2))**
   c. Reduces total HAP emissions using a Thermal Oxidizer designed and operated at a minimum temperature of 1600°F and a minimum residence time of 0.75 seconds. **(40 CFR 63.443(d)(3))**

3. The permittee shall oxidize only the noncondensable gases from the Evaporator System, Steam Stripping System, and Digester System and shall burn only natural gas as a supplemental fuel in the Thermal Oxidizer. [2] **(R 336.1201)**

IV. DESIGN/EQUIPMENT PARAMETER(S)

NA

V. TESTING/SAMPLING

Records shall be maintained on file for a period of five years. **(R 336.1213(3)(b)(ii))**

1. The permittee shall conduct initial emissions tests for total HAPs measured as methanol per the applicable test requirements, methods, and procedures in 40 CFR Part 63, Subpart S. **(40 CFR 63.7, 40 CFR 63.457(a)(1), R 336.1213(3))**

2. Repeat performance tests for total HAPs measured as methanol shall be conducted at five-year intervals. The first of the 5-year repeat tests must be conducted by September 7, 2015, and thereafter within 60 months from the date of the previous performance test, unless the permittee operates the Thermal Oxidizer per SC III.2.c. Notification of performance tests shall be submitted at least 60 days in advance to the Administrator along with a site-specific test plan if requested. **(40 CFR 63.457(a), 40 CFR 63.457(a)(2), 40 CFR 63.443(d)(3), 40 CFR 63.7(b), 40 CFR 63.7(c))**

3. Performance tests shall be conducted according to procedures and test methods specified or approved by the AQD. Not less than 30 days prior to testing, a testing plan shall be submitted to the AQD for review. **(R 336.2001, R 336.2003)**

See Appendix 5

VI. MONITORING/RECORDKEEPING

Records shall be maintained on file for a period of five years. **(R 336.1213(3)(b)(ii))**

1. The permittee shall maintain the packed scrubber with the following:
   a. A monitoring device for the continuous measurement of scrubber liquid feed rate.
   b. A monitoring device for the continuous measurement of the pH of the scrubbing liquid.
   c. A monitoring device for the continuous measurement of the pressure drop across the scrubber. [2] **(R 336.1201, R 336.1213(3), R 336.1910)**

2. The permittee shall maintain the Thermal Oxidizer with a continuous temperature monitoring and recording system to monitor the operating temperature as specified in Section III Process/Operational Restrictions above. [2] **(40 CFR 60.284(b)(1), R 336.1201, R 336.1213(3))**

3. Applicable monitoring and recordkeeping provisions as specified in 40 CFR Part 63, Subpart S. **(40 CFR 63.453, 40 CFR 63.454, R 336.1213(3))**

4. The permittee shall continuously measure pressure drop and record every 15 minutes for a 3 hour average as an indicator of proper operation of the scrubber. The indicator range is a range determined during the last performance test approved by the AQD and specified in the facility's Compliance Assurance Monitoring (CAM) Plan. **(40 CFR 64.6(c)(1)(i and ii))**

5. The permittee shall continuously monitor the scrubber liquid flow rate and record every 15 minutes for a 3 hour average as an indicator of proper operation of the scrubber. The indicator range is a range determined during the last performance test approved by the AQD and specified in the facility's Compliance Assurance Monitoring (CAM) Plan. **(40 CFR 64.6(c)(1)(i and ii))**

6. The permittee shall continuously monitor the pH of the scrubber water and record every 15 minutes for a 3 hour average as an indicator of proper operation of the scrubber. The indicator range is a range determined during the last performance test approved by the AQD and specified in the facility's Compliance Assurance Monitoring (CAM) Plan. **40 CFR 64.6(c)(1)(i and ii))**

7. An excursion is a departure from the indicator ranges determined during the last performance test approved by the AQD and specified in the facility's Compliance Assurance Monitoring (CAM) Plan. **(40 CFR 64.6(c)(2))**

8. Upon detecting an excursion or exceedance, the owner or operator shall restore operation of the pollutant-specific emissions unit (including the control device and associated capture system) to its normal or usual manner of operation as expeditiously as practicable in accordance with good air pollution control practices for minimizing emissions. The response shall include minimizing the period of any startup, shutdown or malfunction and taking any necessary corrective actions to restore normal operation and prevent the likely recurrence of the cause of an excursion or exceedance (other than those caused by excused startup or shutdown conditions). **(40 CFR 64.7(d))**

9. Except for, as applicable, monitoring malfunctions, associated repairs, and required quality assurance or control activities (including, as applicable, calibration checks and required zero and span adjustments), the owner or operator shall conduct all monitoring in continuous operation (or shall collect data at all required intervals) at all times that the pollutant-specific emissions unit is operating. Data recorded during monitoring malfunctions, associated repairs, and required quality assurance or control activities shall not be used for purposes of this part, including data averages and calculations or fulfilling a minimum data availability requirement, if applicable. The owner or operator shall use all the data collected during all other periods in assessing the operation of the control device and associated control system. A monitoring malfunction is any sudden, infrequent, not reasonably preventable failure of the monitoring to provide valid data. Monitoring failures that are caused in part by poor maintenance or careless operation are not malfunctions. **(40 CFR 64.6(c)(3), 64.7(c))**

10. The permittee shall properly maintain the monitoring system, including keeping necessary parts for routine repair of the monitoring equipment. **(40 CFR 64.7(b))**

11. The permittee shall maintain records of monitoring data, monitor performance data, corrective actions taken, any written quality improvement plan and any activities undertaken to implement a quality improvement plan, and other information such as data used to document the adequacy of monitoring, or records of monitoring maintenance or corrective actions. **(40 CFR 64.9(b)(1))**

See Appendix 7

VII. REPORTING

1. Prompt reporting of deviations pursuant to General Conditions 21 and 22 of Part A. **(R 336.1213(3)(c)(ii))**

2. Semiannual reporting of monitoring and deviations pursuant to General Condition 23 of Part A. The report shall be postmarked or received by the appropriate AQD District Office by March 15 for reporting period July 1 to December 31 and September 15 for reporting period January 1 to June 30. **(R 336.1213(3)(c)(i))**

3. Annual certification of compliance pursuant to General Conditions 19 and 20 of Part A. The report shall be postmarked or received by the appropriate AQD District Office by March 15 for the previous calendar year. **(R 336.1213(4)(c))**

4. Applicable reporting requirements as specified in 40 CFR Part 63, Subpart S. **(40 CFR 63.455, R 336.1213(3))**

5. Each semiannual report of monitoring and deviations as specified under the CAM requirements shall include summary information on monitor downtime. If there were no periods of monitor downtime in the reporting period, then this report shall include a statement that there were no periods of monitor downtime. **(40 CFR 64.9(a)(2)(ii))**

6. Each semiannual report of monitoring deviations as specified under the CAM requirements shall include summary information on the number, duration, and cause of CAM exceedances/excursions in the reporting period; and the corrective actions taken in response. If there were no excursions/exceedances in the reporting period, then this report shall include a statement that there were no excursions/exceedances. **(40 CFR 64.9(a)(2)(i))**

7. The permittee shall complete two complete test protocols to the AQD, one to the Technical Programs Unit Supervisor and one to the District Supervisor for approval at least 30 days prior to the anticipated test. The protocol shall describe the test method(s) and the maximum routine operating conditions, including targets for key operational parameters associated with air pollution control equipment to be monitored and recorded during testing. **(R 336.12001(3))**

8. The permittee shall notify the AQD Technical Programs Unit Supervisor and the District Supervisor no less than 7 days prior to the anticipated test date. **(R 336.2001(4))**

9. The permittee shall submit two complete test reports to the AQD, one to the Technical Programs Unit Supervisor and one to the District Supervisor, within 60 days following the last date of the test. **(R 336.2001(5))**

See Appendix 8

VIII. STACK/VENT RESTRICTION(S)

The exhaust gases from the stacks listed in the table below shall be discharged unobstructed vertically upwards to the ambient air unless otherwise noted:

Stack & Vent ID	Maximum Exhaust Dimensions (inches)	Minimum Height Above Ground (feet)	Underlying Applicable Requirements
1. SV29038S	48[2]	148.3[2]	**R 336.1901 40 CFR 63.443(d)**

IX. OTHER REQUIREMENT(S)

1. The air cleaning devices shall be maintained and operated in a satisfactory manner and in accordance with the Michigan Air Pollution Control Rules and existing law. The permittee shall carry out an Inspection and Maintenance Program, including keeping of records of inspections done, problems found, repairs done, and/or corrective action taken. **(R 336.1301, R 336.1910, R 336.1213(3))**

2. The permittee must comply with the applicable requirements of 40 CFR Part 63, Subpart A – General Provisions, as indicated in 40 CFR Part 63, Table 1 to Subpart S – General Provisions Applicability to Subpart S. **(40 CFR 63.440(g))**

3. The permittee shall comply with all applicable requirements of 40 CFR Part 64. **(40 CFR Part 64)**

4. If the permittee identifies a failure to achieve compliance with an emission limitation or standard for which the approved monitoring did not provide an indication of an excursion or exceedance while providing valid data, or the results of compliance or performance testing document a need to modify the existing indicator ranges or designated conditions, the permittee shall promptly notify the AQD and if necessary, submit a proposed modification of the CAM Plan to address the necessary monitoring changes. Such a modification may include but is not limited to, reestablishing indicator ranges or designated conditions, modifying the frequency of conducting monitoring and collecting data, or the monitoring of additional parameters. **(40 CFR 64.7(e))**

Footnotes:
[1] This condition is state only enforceable and was established pursuant to Rule 201(1)(b).
[2] This condition is federally enforceable and was established pursuant to Rule 201(1)(a).

FGB25 – Bleaching System
FLEXIBLE GROUP CONDITIONS

DESCRIPTION

The Bleaching System (FGB25) has four emission units: Bleaching Stage Equipment (EUS25) which includes the bleaching stage equipment where chlorine dioxide is applied and removed. the Chlorine Dioxide Plant (EUB25), Extraction Devices (EUED25), and Methanol Storage (EUM25). The Bleaching System is used to whiten Brownstock pulp for papermaking. Bleaching is accomplished through the use of chemicals, bleaching towers, extraction towers, and washers. Chlorine dioxide is used for bleaching, and is manufactured on site.

Emission Unit: EUS25, EUB25, EUED25, EUM25

POLLUTION CONTROL EQUIPMENT

Gases from the pulp bleaching stages are routed in a closed vent collection system to the Bleach Plant Scrubber System which consists of two packed scrubbers in series. Off-gases from the chlorine dioxide generator and storage tanks are scrubbed with chilled water in a tail gas scrubber prior to being scrubbed in the Bleach Plant Scrubber system.

I. EMISSION LIMIT(S)

Pollutant	Limit	Time Period/ Operating Scenario	Equipment	Monitoring/ Testing Method	Underlying Applicable Requirements
1. Chlorine	789 mg/m^3 corrected to 70°F and 29.92 inches Hg	Test Protocol	EUS25 EUB25	SC V.3	**R 336.1901**[1]
2. Chlorine Dioxide	79 mg/m^3 corrected to 70°F and 29.92 inches Hg	Test Protocol	EUS25 EUB25	SC V.3	**R 336.1901**[1]
3. Chlorinated HAPs	Treatment device outlet concentration of 10 ppmv or less of total chlorinated HAP*	Test Protocol	EUS25	SC V.1 SC V.2	**40 CFR 63.445(c)**

* The control device used to reduce chlorinated HAP emissions (not including chloroform) from the equipment specified in 40 CFR 63.445(b) shall:
a. Reduce the total chlorinated HAP mass in the vent stream entering the control device by 99 percent or more by weight;
b. Achieve a treatment device outlet concentration of 10 ppmv or less of total chlorinated HAP; or
c. Achieve a treatment device outlet mass emission rate of 0.001 kilograms of total chlorinated HAP mass per megagram (0.002 pounds per ton) of oven-dried pulp.[2]

II. MATERIAL LIMIT(S)

Material	Limit	Time Period/ Operating Scenario	Equipment	Monitoring/ Testing Method	Underlying Applicable Requirements
NA	NA	NA	NA	NA	NA

III. PROCESS/OPERATIONAL RESTRICTION(S)

1. The permittee shall not operate the process unless the combined scrubbers are operating properly. [2] **(R 336.1201, R 336.1910)**

2. The permittee shall not operate the modified chlorine dioxide plant unless the chilled water tail gas scrubber is operating properly. [2] **(R 336.1201, R 336.1910)**

3. The permittee shall direct all exhaust gases from the chilled water tail gas scrubber to the combined scrubbers. [2] **(R 336.1201)**

4. The equipment at each bleaching stage where chlorine dioxide is introduced shall be enclosed and vented to a closed-vent system and routed to a control device. **(40 CFR 63.445(b))**

5. Each enclosure and closed-vent system used for capturing and transporting vent streams that contain HAP shall meet the applicable requirements specified in "Standards for Enclosures and Closed-Vent Systems." **(40 CFR 63.450)**

6. Each enclosure and closed-vent system used to comply with the 40 CFR 63.450 "Standards for Enclosures and Closed-Vent Systems" shall comply with the inspection requirements as specified in 40 CFR 63.453(k). **(40 CFR 63.453(k))**

IV. DESIGN/EQUIPMENT PARAMETER(S)

NA

V. TESTING/SAMPLING

Records shall be maintained on file for a period of five years. **(R 336.1213(3)(b)(ii))**

1. The permittee shall conduct initial emissions tests for chlorinated HAPs per the applicable test requirements, methods, and procedures in 40 CFR Part 63, Subpart A and S. **(40 CFR 63.7, 40 CFR 63.457(a)(1), R 336.1213(3))**

2. Repeat performance tests for chlorinated HAPs (not including chloroform) shall be conducted at five-year intervals. The first of the 5-year repeat tests must be conducted by September 7, 2015, and thereafter within 60 months from the date of the previous performance test, unless the permittee operates the Thermal Oxidizer per SC III.2.c. Notification of performance tests shall be submitted at least 60 days in advance to the Administrator along with a site-specific test plan if requested. **(40 CFR 63.457(a), 40 CFR 63.457(a)(2), 40 CFR 63.443(d)(3), 40 CFR 63.7(b), 40 CFR 63.7(c))**

3. Performance tests shall be conducted according to procedures and test methods specified or approved by the AQD. Not less than 30 days prior to testing, a testing plan shall be submitted to the AQD for review. **(R 336.2001, R 336.2003)**

See Appendix 5

VI. MONITORING/RECORDKEEPING

Records shall be maintained on file for a period of five years. **(R 336.1213(3)(b)(ii))**

1. The oxidation/reduction potential or pH of the scrubber effluent shall be continuously monitored and recorded at a minimum of 15-minute intervals while the emission unit is in operation. The oxidation/reduction potential shall be maintained, on a 3-hour ~~rolling~~ average basis, within a range determined during the most recent performance test approved by the Administrator. **(40 CFR 63.453(c), R 336.1213(3))**

2. The scrubber liquid effluent flow rate shall be continuously monitored and recorded at a minimum of 15-minute intervals while the emission unit is in operation. The scrubber liquid influent flow rate shall be maintained, on a

Commented [BA3]: This has been removed to change the Bleach Plant to match other sources with 3-hour averaging periods.

3-hour ~~rolling~~ average basis, within a range determined during the most recent performance test approved by the Administrator. **(40 CFR 63.453(c), R 336.1213(3))**

3. The vent gas flow rate shall be continuously monitored and recorded at a minimum of 15-minute intervals by using fan motor amperage, on/off status, or the rotational speed of the fan. These options were approved by USEPA Region V in a letter to the permittee dated March 5, 2001. **(40 CFR 63.453(m), R 336.1213(3))**

4. Record methanol storage tank dimensions and capacity as specified in 40 CFR Part 60, Subpart Kb. **(R 336.1213(3), 40 CFR 60.116(b))**

5. Applicable monitoring and recordkeeping provisions as specified in 40 CFR Part 63, Subpart S. **(40 CFR 63.453, 40 CFR 63.454, R 336.1213(3))**

See Appendix 7

VII. REPORTING

1. Prompt reporting of deviations pursuant to General Conditions 21 and 22 of Part A. **(R 336.1213(3)(c)(ii))**

2. Semiannual reporting of monitoring and deviations pursuant to General Condition 23 of Part A. The report shall be postmarked or received by the appropriate AQD District Office by March 15 for reporting period July 1 to December 31 and September 15 for reporting period January 1 to June 30. **(R 336.1213(3)(c)(i))**

3. Annual certification of compliance pursuant to General Conditions 19 and 20 of Part A. The report shall be postmarked or received by the appropriate AQD District Office by March 15 for the previous calendar year. **(R 336.1213(4)(c))**

4. Applicable reporting requirements as specified in 40 CFR Part 63, Subpart S. **(40 CFR 63.455, R 336.1213(3))**

5. The permittee shall complete two complete test protocols to the AQD, one to the Technical Programs Unit Supervisor and one to the District Supervisor for approval at least 30 days prior to the anticipated test. The protocol shall describe the test method(s) and the maximum routine operating conditions, including targets for key operational parameters associated with air pollution control equipment to be monitored and recorded during testing. **(R 336.12001(3))**

6. The permittee shall notify the AQD Technical Programs Unit Supervisor and the District Supervisor no less than 7 days prior to the anticipated test date. **(R 336.2001(4))**

7. The permittee shall submit two complete test reports to the AQD, one to the Technical Programs Unit Supervisor and one to the District Supervisor, within 60 days following the last date of the test. **(R 336.2001(5))**

See Appendix 8

VIII. STACK/VENT RESTRICTION(S)

The exhaust gases from the stacks listed in the table below shall be discharged unobstructed vertically upwards to the ambient air unless otherwise noted:

Stack & Vent ID	Maximum Exhaust Dimensions (inches)	Minimum Height Above Ground (feet)	Underlying Applicable Requirements
1. SV25039S	30[2]	179.5[2]	**R 336.1901 40 CFR 63.445(c)**

IX. OTHER REQUIREMENT(S)

1. The air cleaning devices shall be maintained and operated in a satisfactory manner and in accordance with the Michigan Air Pollution Control Rules and existing law. The permittee shall carry out an Inspection and Maintenance Program, including keeping of records of inspections done, problems found, repairs done, and/or corrective action taken. **(R 336.1301, R 336.1910, R 336.1213(3))**

2. The permittee must comply with the applicable requirements of 40 CFR Part 63, Subpart A – General Provisions, as indicated in 40 CFR Part 63, Table 1 to Subpart S – General Provisions Applicability to Subpart S. **(40 CFR 63.440(g))**

3. The permittee shall comply with applicable requirements of 40 CFR 63.445 Standards for the Bleaching Stage Equipment (EUS25) at all times. Except during periods of SSM. **(40 CFR 63.445)**

4. There shall be no visible emissions except uncombined water vapor from the Bleaching Stage Equipment (EUS25) or the Chlorine Dioxide Plant (EUB25).[2] **(R 336.1301, R 336.1201)**

Footnotes:
[1] This condition is state only enforceable and was established pursuant to Rule 201(1)(b).
[2] This condition is federally enforceable and was established pursuant to Rule 201(1)(a).

FGLK29 – Lime Kiln System
FLEXIBLE GROUP CONDITIONS

DESCRIPTION

The Lime Kiln System (FGLK29) includes the Lime Kiln (EULK29) and two Lime Storage Bins (EULKI29), one for hot lime storage, one for purchased lime storage. The Lime Kiln System processes lime mud from the Recausitcizing System to regenerate calcium oxide. Evaporator condensate is used for lime mud washing. Filtrate from lime mud washing, known as weak wash, is used in the Bleaching System and the Chemical Recovery Furnace System as an air scrubbing medium. Lime mud is mixed, washed, and fed to the Lime Kiln where it is converted to ~~calcim~~calcium oxide. Calcium oxide is conveyed by bucket elevator to the lime storage bin. From the storage bins, calcium oxide is utilized in the Recausticizing Process. The Lime Kiln is fired with natural gas and/or fuel oil. The Lime Kiln acts as a backup incineration device for the Thermal Oxidizer System.

Emission Unit: EULK29 and EULKI29

POLLUTION CONTROL EQUIPMENT

Venturi scrubber and mist eliminator on EULK29. A common baghouse dust collector serves EULKI29.

I. EMISSION LIMIT(S)

Pollutant	Limit	Time Period/ Operating Scenario	Equipment	Monitoring/ Testing Method	Underlying Applicable Requirements
1. HAP Metals measured as PM*	0.064 gr/dscf corrected to 10% oxygen on a 3-hour average	Test Protocol	EULK29	SC V.1	**40 CFR 63.861 40 CFR 63.6(f) 40 CFR 63.862(a)(1)(i)(c) 40 CFR 63.862(a)(1)(ii)**
2. PM	0.20 lb / 1000 lbs of exhaust gases measured at operating conditions[2]	Test Protocol	EULK29	SC V.2	**R 336.1201 R 336.1331**
3. PM	0.10 lb / 1000 lbs of exhaust gas measured at operating conditions[2]	Test Protocol	EULKI29	SC V.2	**R 336.1331**
4. SO_2	9 pph[2]	Test Protocol	EULK29	SC V.2	**R 336.1201**
5. Total Reduced Sulfur	20 ppmv corrected to 10 % oxygen on a 12-hour average[2]	Test Protocol	EULK29	SC VI.1	**R 336.1201**

* Either of the following are acceptable:

a. 0.064 gr/dscf corrected to 10% oxygen on a 3-hour average at all times except during a SSM and as specified in 40 CFR 63.864(k)(2)

OR

b. Alternate Particulate Matter (PM) emission limits may be established for each existing recovery furnace, smelt dissolving tank, and lime kiln that operates 6,300 hours per year or more as provided under 40 CFR 63.862(a)(1)(ii), subject to limitations specified. [2] **(40 CFR 63.862(a)(1)(ii), 40 CFR 63.865(a), 40 CFR 63.865(b))**

II. MATERIAL LIMIT(S)

Material	Limit	Time Period/ Operating Scenario	Equipment	Monitoring/ Testing Method	Underlying Applicable Requirements
NA	NA	NA	NA	NA	NA

III. PROCESS/OPERATIONAL RESTRICTION(S)

1. The permittee shall not operate EULK29 unless the venturi scrubber and mist eliminator are operating properly. [2] **(R 336.1201, R 336.1910)**

IV. DESIGN/EQUIPMENT PARAMETER(S)

NA

V. TESTING/SAMPLING

Records shall be maintained on file for a period of five years. **(R 336.1213(3)(b)(ii))**

1. Permittee shall conduct performance tests for Particulate Matter per the applicable performance test requirements and test methods specified in 40 CFR Part 63, Subpart A and MM. **(R 336.1213(3), 40 CFR 63.7, 40 CFR 63.865)**

2. Performance tests shall be conducted according to procedures and test methods specified or approved by the AQD. Not less than 30 days prior to testing, a testing plan shall be submitted to the AQD for review. **(R 336.2001, R 336.2003)**

See Appendix 5

VI. MONITORING/RECORDKEEPING

Records shall be maintained on file for a period of five years. **(R 336.1213(3)(b)(ii))**

1. The permittee shall monitor and record the total reduced sulfur concentration from EULK29 exhaust gases on a continuous basis in a manner and with instrumentation acceptable to the AQD. Although the source is not subject to the NSPS (40 CFR Part 60, Subpart BB), the monitoring shall utilize the quality assurance/quality control activities of 40 CFR Part 60, Appendix F, Procedure 1 as a guideline. Daily calibrations shall be conducted in accordance with 40 CFR Part 60, Appendix F, Procedure 1, Section 4. A Cylinder gas audit shall be conducted once each calendar quarter in accordance with 40 CFR Part 60, Appendix F, Procedure 1 Section 5.1.2 in lieu of performing a relative accuracy test audit. [1] **(R 336.1901)**

2. The permittee shall install, calibrate, maintain and operate a continuous monitoring system to measure the pressure drop across the scrubber and the scrubbing liquid flow rate at least once every successive 15 minute period using the procedures in 40 CFR 63.8. **(40 CFR 63.864(e)(10)**

3. The permittee shall maintain operating parameters within the range established according to 40 CFR 63.864(j). The source will be considered in violation of the standards in 40 CFR 63.862 if six or more 3 hour average parameter values within any semi–annual reporting period are outside the established operating range, at all times except during periods of SSM. No more than one exceedance will be attributed to any 24 hour period. **(40 CFR 63.864(k)(2)(iii), 40 CFR 63.864(k)(3))**

4. The permittee shall implement corrective action, as specified in the SSM plan prepared under 40 CFR 63.866(a) when any 3 hour average parameter value is outside the range of values established as provided in 40 CFR 63.864(l). **(40 CFR 63.864(k)(1)(ii))**

5. The permittee shall maintain the records specified in 40 CFR 63.866(b)(c) in addition to the record keeping requirements of 40 CFR 63.10(b)(2). **(40 CFR 63.866(b)-(c))**

6. The permittee shall establish scrubber differential pressure and flow operating ranges as specified in 40 CFR 63.864(j) and 40 CFR 63.865. The operating ranges are the ranges determined during the last performance test approved by the Administrator. **(40 CFR 63.864(j))**

7. The monitoring device used for the continuous measurement of the pressure drop of the gas stream across the scrubber must be certified by the manufacturer to be accurate to within a gage pressure of ±500 pascals (±2 inches of water gage pressure). **(40 CFR 63.864(e)(10)(i))**

8. The permittee shall continuously measure pressure drop and record for a daily average as an indicator of proper operation of the EULKI29 baghouse. The indicator range is a range determined during the last performance test approved by the Administrator and specified in the facility's Compliance Assurance Monitoring (CAM) Plan. **(40 CFR 64.6(c)(1)(i and ii))**

9. The monitoring device used for continuous measurement of the scrubbing liquid flow rate must be certified by the manufacturer to be accurate within ±5 percent of the design scrubbing liquid flow rate. **(40 CFR 63.864(e)(10)(ii))**

10. An excursion is a departure from the pressure drop indicator range determined during the last performance test approved by the Administrator and specified in the facility's Compliance Assurance Monitoring (CAM) Plan on the EULKI29 baghouse. **(40 CFR 64.6(c)(2))**

11. Upon detecting an excursion or exceedance, the owner or operator shall restore operation of the pollutant-specific emissions unit (including the control device and associated capture system) to its normal or usual manner of operation as expeditiously as practicable in accordance with good air pollution control practices for minimizing emissions. The response shall include minimizing the period of any startup, shutdown or malfunction and taking any necessary corrective actions to restore normal operation and prevent the likely recurrence of the cause of an excursion or exceedance (other than those caused by excused startup or shutdown conditions). **(40 CFR 64.7(d))**

12. Except for, as applicable, monitoring malfunctions, associated repairs, and required quality assurance or control activities (including, as applicable, calibration checks and required zero and span adjustments), the owner or operator shall conduct all monitoring in continuous operation (or shall collect data at all required intervals) at all times that the pollutant-specific emissions unit is operating. Data recorded during monitoring malfunctions, associated repairs, and required quality assurance or control activities shall not be used for purposes of this part, including data averages and calculations or fulfilling a minimum data availability requirement, if applicable. The owner or operator shall use all the data collected during all other periods in assessing the operation of the control device and associated control system. A monitoring malfunction is any sudden, infrequent, not reasonably preventable failure of the monitoring to provide valid data. Monitoring failures that are caused in part by poor maintenance or careless operation are not malfunctions. **(40 CFR 64.6(c)(3), 64.7(c))**

13. The permittee shall properly maintain the monitoring system, including keeping necessary parts for routine repair of the monitoring equipment. **(40 CFR 64.7(b))**

14. The permittee shall maintain records of monitoring data, monitor performance data, corrective actions taken, any written quality improvement plan and any activities undertaken to implement a quality improvement plan, and other information such as data used to document the adequacy of monitoring, or records of monitoring maintenance or corrective actions. **(40 CFR 64.9(b)(1))**

See Appendix 7

VII. REPORTING

1. Prompt reporting of deviations pursuant to General Conditions 21 and 22 of Part A. **(R 336.1213(3)(c)(ii))**

2. Semiannual reporting of monitoring and deviations pursuant to General Condition 23 of Part A. The report shall be postmarked or received by the appropriate AQD District Office by March 15 for reporting period July 1 to December 31 and September 15 for reporting period January 1 to June 30. **(R 336.1213(3)(c)(i))**

3. Annual certification of compliance pursuant to General Conditions 19 and 20 of Part A. The report shall be postmarked or received by the appropriate AQD District Office by March 15 for the previous calendar year. **(R 336.1213(4)(c))**

4. The permittee shall submit the applicable notifications and reports specified in 40 CFR 63.9 and 40 CFR 63.10. The permittee shall submit a quarterly excess emissions report if measured parameters meet any of the conditions specified in 40 CFR 63.864(k)(1) or (2). When no exceedances of parameters have occurred, permittee shall submit a semiannual report stating that no excess emissions occurred during the reporting period. **(40 CFR 63.867)**

5. Each semiannual report of monitoring and deviations as specified under the CAM requirements shall include summary information on monitor downtime. If there were no periods of monitor downtime in the reporting period, then this report shall include a statement that there were no periods of monitor downtime. **(40 CFR 64.9(a)(2)(ii))**

6. Each semiannual report of monitoring deviations as specified under the CAM requirements shall include summary information on the number, duration, and cause of CAM exceedances/excursions in the reporting period; and the corrective actions taken in response. If there were no excursions/exceedances in the reporting period, then this report shall include a statement that there were no excursions/exceedances. **(40 FR 64.9(a)(2)(i))**

7. The permittee shall complete two complete test protocols to the AQD, one to the Technical Programs Unit Supervisor and one to the District Supervisor for approval at least 30 days prior to the anticipated test. The protocol shall describe the test method(s) and the maximum routine operating conditions, including targets for key operational parameters associated with air pollution control equipment to be monitored and recorded during testing. **(R 336.12001(3))**

8. The permittee shall notify the AQD Technical Programs Unit Supervisor and the District Supervisor no less than 7 days prior to the anticipated test date. **(R 336.2001(4))**

9. The permittee shall submit two complete test reports to the AQD, one to the Technical Programs Unit Supervisor and one to the District Supervisor, within 60 days following the last date of the test. **(R 336.2001(5))**

See Appendix 8

VIII. STACK/VENT RESTRICTION(S)

The exhaust gases from the stacks listed in the table below shall be discharged unobstructed vertically upwards to the ambient air unless otherwise noted:

Stack & Vent ID	Maximum Exhaust Dimensions (inches)	Minimum Height Above Ground (feet)	Underlying Applicable Requirements
1. SV29037S	56[2]	147.6[2]	**R 336.1901 40 CFR 63.861 40 CFR 63.862**

IX. OTHER REQUIREMENT(S)

1. The air cleaning devices shall be maintained and operated in a satisfactory manner and in accordance with the Michigan Air Pollution Control Rules and existing law. The permittee shall carry out an Inspection and Maintenance Program, including keeping of records of inspections done, problems found, repairs done, and/or corrective action taken. **(R 336.1301, R 336.1331, R 336.1910, R 336.1213(3))**

2. The permittee shall develop and implement a Startup, Shutdown, and Malfunction Plan as specified in 40 CFR Part 63, Subpart MM. **(R 336.1213(3), 40 CFR 63.866)**

3. The permittee shall comply with the applicable requirements of 40 CFR Part 63, Subpart A – General Provisions which are identified in 40 CFR Part 63, Table 1 to Subpart MM – General Provisions Applicability to Subpart MM. **(40 CFR 63.860(c))**

4. The permittee shall comply with all applicable requirements of 40 CFR Part 64. **(40 CFR Part 64)**

5. If the permittee identifies a failure to achieve compliance with an emission limitation or standard for which the approved monitoring did not provide an indication of an excursion or exceedance while providing valid data, or the results of compliance or performance testing document a need to modify the existing indicator ranges or designated conditions, the permittee shall promptly notify the AQD and if necessary, submit a proposed modification of the CAM Plan to address the necessary monitoring changes. Such a modification may include but is not limited to, reestablishing indicator ranges or designated conditions, modifying the frequency of conducting monitoring and collecting data, or the monitoring of additional parameters. **(40 CFR 64.7(e))**

Footnotes:
[1] This condition is state only enforceable and was established pursuant to Rule 201(1)(b).
[2] This condition is federally enforceable and was established pursuant to Rule 201(1)(a).

FGSIRICE – SI RICE Units
FLEXIBLE GROUP CONDITIONS

DESCRIPTION

The Spark Ignition Emergency Engine Group (FGSIRICE) consists of 2 spark ignition engines, The Lime Kiln Emergency Drive Motor (EULKSIRICE) and the EOC Back-up Generator (EUEOCSIRICE). The engines are used to provide mechanical work or power a generator in emergency situations. Both engines are 4 stroke lean burn <250 HP.

Emission Unit: EULKSIRICE, EUEOCSIRICE

POLLUTION CONTROL EQUIPMENT

NA

I. EMISSION LIMIT(S)

Pollutant	Limit	Time Period/ Operating Scenario	Equipment	Monitoring/ Testing Method	Underlying Applicable Requirements
NA	NA	NA	NA	NA	NA

II. MATERIAL LIMIT(S)

Material	Limit	Time Period/ Operating Scenario	Equipment	Monitoring/ Testing Method	Underlying Applicable Requirements
NA	NA	NA	NA	NA	NA

III. PROCESS/OPERATIONAL RESTRICTION(S)

1. The Permittee shall not exceed the operational limits specified below. The operational limits apply to each engine.

Operational Status	Limit*	Time Period/Operating Scenario	Equipment	Monitoring/ Testing Method	Underlying Applicable Requirements
a. Emergency	Unlimited hours	Annually	Each Emergency Spark Ignition Engine	SC VI.2	**40 CFR 63.6640(f)(1)**
b. Non-emergency	50 hours	Annually	Each Emergency Spark Ignition Engine	SC VI.2	**40 CFR 63.6640(f)(3)**
c. Maintenance Checks and Readiness Testing	100 hours	Annually	Each Emergency Spark Ignition Engine	SC VI.2	**40 CFR 63.6640(f)(2)(i)**
d. Emergency Demand Response	100 hours	Annually	Each Emergency Spark Ignition Engine	SC VI.2	**40 CFR 63.6640(f)(2)(ii)**
e. Periods of voltage or frequency deviation >5% of standard	100 hours	Annually	Each Emergency Spark Ignition Engine	SC VI.2	**40 CFR 63.6640(f)(2)(iii)**

*The combination of operational hours for non-emergency purposes must not exceed 100 hours per calendar year. [2]
(40 CFR 63.6640(f)(2)

IV. DESIGN/EQUIPMENT PARAMETER(S)

1. The Permittee shall install a non-resettable hour meter on each engine in the EUSIENG group.
(40 CFR 63.6595(a)(1), 40 CFR 63.6625(f)).

V. TESTING/SAMPLING

Records shall be maintained on file for a period of five years. **(R 336.1213(3)(b)(ii))**

NA

See Appendix 5

VI. MONITORING/RECORDKEEPING

Records shall be maintained on file for a period of five years. **(R 336.1213(3)(b)(ii))**

1. The permittee shall keep a record of the hours of operation recorded through the non-resettable hour meter documenting the following:
   a. The hours spent for emergency operation.
   b. What classified the operation as emergency.
   c. The hours spent for non-emergency operation.
   d. For emergency demand response and voltage or frequency deviation use, document notification the emergency situation and the date, start time, and end time of the engine operation for these purposes.
   (40 CFR 63.6655(f))

2. The permittee shall keep a record of the maintenance conducted on each RICE. **(40 CFR 63.6655 (e))**

See Appendix 7

VII. REPORTING

1. Prompt reporting of deviations pursuant to General Conditions 21 and 22 of Part A. **(R 336.1213(3)(c)(ii))**

2. Semiannual reporting of monitoring and deviations pursuant to General Condition 23 of Part A. The report shall be postmarked or received by the appropriate AQD District Office by March 15 for reporting period July 1 to December 31 and September 15 for reporting period January 1 to June 30. **(R 336.1213(3)(c)(i))**

3. Annual certification of compliance pursuant to General Conditions 19 and 20 of Part A. The report shall be postmarked or received by the appropriate AQD District Office by March 15 for the previous calendar year. **(R 336.1213(4)(c))**

See Appendix 8

VIII. STACK/VENT RESTRICTION(S)

The exhaust gases from the stacks listed in the table below shall be discharged unobstructed vertically upwards to the ambient air unless otherwise noted:

Stack & Vent ID	Maximum Exhaust Dimensions (inches)	Minimum Height Above Ground (feet)	Underlying Applicable Requirements
NA	NA	NA	NA

IX. OTHER REQUIREMENT(S)

1. The engine oil and filter shall be changed every 500 hours, or annually, whichever is sooner. **(40 CFR 63.6602)**

2. The spark plugs shall be inspected every 1,000 hours, or annually, whichever is sooner. **(40 CFR 63.6602)**

3. All belts and hoses shall be inspected and replaced if necessary every 500 hours, or annually, whichever is sooner. **(40 CFR 63.6602)**

4. The permittee shall demonstrate continuous compliance with work or management practices by doing the following:
   a. Operating and maintaining the stationary RICE according to the manufacturer's emission-related operation and maintenance instructions; or
   b. Develop and follow a maintenance plan which must provide to the extent practicable for the maintenance and operation of the engine in a manner consistent with good air pollution control practice for minimizing emissions. **(40 CFR 63.6655(d))**

Footnotes:
[1] This condition is state only enforceable and was established pursuant to Rule 201(1)(b).
[2] This condition is federally enforceable and was established pursuant to Rule 201(1)(a).

FGCIRICE – CI Rice Units
FLEXIBLE GROUP CONDITIONS

DESCRIPTION

The Compression Ignition Emergency Engine Group (FGCIRICE) consists of 4 compression ignition engines: the E1 Emergency Lift Pump (EUE1CIRICE), the Water Treatment Building Emergency Fire Water Pump (EUFW1CIRICE), the Administrative Building Emergency Fire Water Pump (EUFW2CIRICE), and the Turbine Turning Gear Back-up Generator (EUTTGCIRICE). The engines are used to provide mechanical work and to power pumps (e.g., fire water pump).in emergency situations. All engines are 4 stroke lean burn <250 HP.

Emission Unit: EUE1CIRICE, EUFW1CIRICE, EUFW2CIRICE, and EUTTGCIRICE

POLLUTION CONTROL EQUIPMENT

NA

I. EMISSION LIMIT(S)

Pollutant	Limit	Time Period/ Operating Scenario	Equipment	Monitoring/ Testing Method	Underlying Applicable Requirements
NA	NA	NA	NA	NA	NA

II. MATERIAL LIMIT(S)

Material	Limit	Time Period/ Operating Scenario	Equipment	Monitoring/ Testing Method	Underlying Applicable Requirements
NA	NA	NA	NA	NA	NA

III. PROCESS/OPERATIONAL RESTRICTION(S)

1. The Permittee shall not exceed the operational limits specified below. The operational limits apply to each engine.

Operational Status	Limit*	Time Period/ Operating Scenario	Equipment	Monitoring/ Testing Method	Underlying Applicable Requirements
a. Emergency	Unlimited hours	Annually	Each Emergency Compression Ignition Engine	SC VI.2	**40 CFR 63.6640(f)(1)**
b. Non-emergency	50 hours	Annually	Each Emergency Compression Ignition Engine	SC VI.2	**40 CFR 63.6640(f)(3)**
c. Maintenance Checks and Readiness Testing	100 hours	Annually	Each Emergency Compression Ignition Engine	SC VI.2	**40 CFR 63.6640(f)(2)(i)**
d. Emergency Demand Response	100 hours	Annually	Each Emergency Compression Ignition Engine	SC VI.2	**40 CFR 63.6640(f)(2)(ii)**
e. Periods of voltage or frequency deviation >5% of standard	100 hours	Annually	Each Emergency Compression Ignition Engine	SC VI.2	**40 CFR 63.6640(f)(2)(iii)**
*The combination of operational hours for non-emergency purposes must not exceed 100 hours per calendar year[2] **(40 CFR 63.6640(f)(2))**					

IV. DESIGN/EQUIPMENT PARAMETER(S)

1. The Permittee shall install a non-resettable hour meter on each engine in the EUCIENG. **(40 CFR 63.6595(a)(1), 40 CFR 63.6625(f))**

V. TESTING/SAMPLING

Records shall be maintained on file for a period of five years. **(R 336.1213(3)(b)(ii))**

NA

See Appendix 5

VI. MONITORING/RECORDKEEPING

Records shall be maintained on file for a period of five years. **(R 336.1213(3)(b)(ii))**

1. The permittee shall keep a record of the hours of operation recorded through the non-resettable hour meter documenting the following:
   a. The hours spent for emergency operation.
   b. What classified the operation as emergency.
   c. The hours spent for non-emergency operation.
   d. For emergency demand response and voltage or frequency deviation use, document notification the emergency situation and the date, start time, and end time of the engine operation for these purposes. **(40 CFR 63.6655(f))**

2. The permittee shall keep a record of the maintenance conducted on each RICE. **(40 CFR 63.6655 (e))**

See Appendix 7

VII. REPORTING

1. Prompt reporting of deviations pursuant to General Conditions 21 and 22 of Part A. **(R 336.1213(3)(c)(ii))**

2. Semiannual reporting of monitoring and deviations pursuant to General Condition 23 of Part A. The report shall be postmarked or received by the appropriate AQD District Office by March 15 for reporting period July 1 to December 31 and September 15 for reporting period January 1 to June 30. **(R 336.1213(3)(c)(i))**

3. Annual certification of compliance pursuant to General Conditions 19 and 20 of Part A. The report shall be postmarked or received by the appropriate AQD District Office by March 15 for the previous calendar year. **(R 336.1213(4)(c))**

See Appendix 8

VIII. STACK/VENT RESTRICTION(S)

The exhaust gases from the stacks listed in the table below shall be discharged unobstructed vertically upwards to the ambient air unless otherwise noted:

Stack & Vent ID	Maximum Exhaust Dimensions (inches)	Minimum Height Above Ground (feet)	Underlying Applicable Requirements
NA	NA	NA	NA

IX. OTHER REQUIREMENT(S)

1. The engine oil and filter shall be changed every 500 hours, or annually, whichever is sooner. **(40 CFR 63.6602)**

2. The air filter shall be inspected every 1,000 hours, or annually, whichever is sooner. **(40 CFR 63.6602)**

3. All belts and hoses shall be inspected and replaced if necessary every 500 hours, or annually, whichever is sooner. **(40 CFR 63.6602)**

4. The permittee shall demonstrate continuous compliance with work or management practices by doing the following:
   a. Operating and maintaining the stationary RICE according to the manufacturer's emission-related operation and maintenance instructions; or
   b. Develop and follow a maintenance plan which must provide to the extent practicable for the maintenance and operation of the engine in a manner consistent with good air pollution control practice for minimizing emissions. **(40 CFR 63.6655(d))**

Footnotes:
[1] This condition is state only enforceable and was established pursuant to Rule 201(1)(b).
[2] This condition is federally enforceable and was established pursuant to Rule 201(1)(a).

~~FGEVAPORATORMOD~~
~~FLEXIBLE GROUP CONDITIONS~~

Commented [BA4]: Based on VI.2, recordkeeping is no longer needed for this Flexible Group.

~~DESCRIPTION~~

~~The Evaporator System consists of equipment used to concentrate weak black liquor as a part of the chemical recovery process for Kraft pulping liquor. The preheat falling intermediate solids concentrator (ISC) portion of the evaporator system was replaced with a Reynolds Enhanced Crystallizer (REX) design. Based on the actual-to-projected-actual applicability test, this is a minor modification for purposes of major source review for both attainment area and nonattainment area regulations.~~

~~**Emission Unit:** EUBB23, EURF15, EUST15, EUS29, EUBB05, EUME05, EUOT22, EUBB22, EUMT22, EUBB33, EUMC33, EUOC33, EUSA33, EULK29, EUB25, EUED25, EUM25, EU4PM64, EU4C65, EUSS66, EU1SB14, EU2SB14, and EUCS14~~

~~POLLUTION CONTROL EQUIPMENT~~

~~The LVHC noncondensable gases from the Evaporator System are enclosed and vented into a closed-vent system and incinerated in the Thermal Oxidizer (EUOC33) or the Lime Kiln (EULK29) as a backup incineration device. Tank breathing losses are collected and incinerated in the #10 Recovery Furnace (EURF15).~~

~~I. EMISSION LIMIT(S)~~

~~Pollutant~~	~~Limit~~	~~Time Period/ Operating Scenario~~	~~Equipment~~	~~Monitoring/ Testing Method~~	~~Underlying Applicable Requirements~~
~~NA~~	~~NA~~	~~NA~~	~~NA~~	~~NA~~	~~NA~~

~~II. MATERIAL LIMIT(S)~~

~~Material~~	~~Limit~~	~~Time Period/ Operating Scenario~~	~~Equipment~~	~~Monitoring/ Testing Method~~	~~Underlying Applicable Requirements~~
~~NA~~	~~NA~~	~~NA~~	~~NA~~	~~NA~~	~~NA~~

~~III. PROCESS/OPERATIONAL RESTRICTION(S)~~

~~NA~~

~~IV. DESIGN/EQUIPMENT PARAMETER(S)~~

~~NA~~

~~V. TESTING/SAMPLING~~

~~Records shall be maintained on file for a period of five years. **(R 336.1213(3)(b)(ii))**~~

1. ~~Within 270 days of issuance of this permit, the permittee shall verify PM, PM10, PM2.5, NOx, and CO emission rates from the #10 Recovery Furnace (EURF15) of the FGEVAPORATORMOD by testing at owner's expense, in accordance with Department requirements. No less than 30 days prior to testing, the permittee shall submit a complete test plan to the AQD. The AQD must approve the final plan prior to testing. Verification of emission rates includes the submittal of a complete report of the test results to the AQD within 60 days following the last date of the test.[2] **(R 336.1205, R 336.1299, R 336.2001, R 336.2003, R 336.2004, R 336.2902(6), R 336.2803, R 336.2804, 40 CFR 52.21(c) & (d))**~~

~~**See Appendix 5**~~

~~VI. MONITORING/RECORDKEEPING~~

~~Records shall be maintained on file for a period of five years. **(R 336.1213(3)(b)(ii))**~~

1. ~~The permittee shall complete all required calculations in a format acceptable to the AQD District Supervisor and make them available by the 30th day of the calendar month, for the previous calendar month, unless otherwise specified in any monitoring/recordkeeping special condition.[2] **(R 336.1205, R 336.1301, R 336.1331, R 336.1901, R 336.1910, R 336.2803, R 336.2804, 40 CFR 52.21(c)(d))**~~

2. ~~The permittee shall calculate and keep records of PM, PM10, PM2.5, SO2, NOx, CO, VOC, H2SO4, TRS, H2S, Pb, Total GHG and CO2e emission rates from FGEVAPORATORMOD, in tons per year on a calendar year basis. The permittee shall calculate and keep records throughputs in tons from FGEVAPORATORMOD on a monthly and calendar year basis for the following:~~
   a. ~~Aired dry tons of bleached pulp (ADTP BL)~~
   b. ~~Aired dry tons of unbleached pulp (ADTP UNBL)~~
   c. ~~Oven dried tons of unbleached pulp (ODTP UNBL)~~
   d. ~~Calcium oxide (CaO)~~
   e. ~~Wet chips~~
   f. ~~Paper~~
   g. ~~Coating~~
   h. ~~Recovery Furnace black liquor solids fired (RF BLS Fired)~~
   i. ~~Natural gas usage in MMBtu for the thermal oxidizer~~

   ~~The recordkeeping period shall begin on the first day of the month during which the evaporator (EUBB05) and any of the affected emission units commences operation (November 3, 2011) and shall continue for 5 years (November 3, 2016). The calculations and records shall be kept in a format described in Appendix 9, or an alternative format acceptable to the AQD Permit Section Supervisor. The permittee shall keep all records on file and make them available to the Department upon request.[2] **(R 336.1205, R 336.2802(4)(d), R 336.2818, 40 CFR 52.21, 40 CFR 52.21(r)(6)(c)(iii))**~~

~~**See Appendix 7**~~

~~VII. REPORTING~~

1. ~~Prompt reporting of deviations pursuant to General Conditions 21 and 22 of Part A. **(R 336.1213(3)(c)(ii))**~~

2. ~~Semiannual reporting of monitoring and deviations pursuant to General Condition 23 of Part A. The report shall be postmarked or received by the appropriate AQD District Office by March 15 for reporting period July 1 to December 31 and September 15 for reporting period January 1 to June 30. **(R 336.1213(3)(c)(i))**~~

3. ~~Annual certification of compliance pursuant to General Conditions 19 and 20 of Part A. The report shall be postmarked or received by the appropriate AQD District Office by March 15 for the previous calendar year. **(R 336.1213(4)(c))**~~

4. ~~Not less than 7 days before performance tests are conducted, the permittee shall notify the AQD District Supervisor in writing of the time and place of the performance tests and who shall conduct them.[2] **(R 336.2001(3))**~~

5. ~~The permittee shall submit records of PM, PM10, PM2.5, SO2, NOx, CO, VOC, H2SO4, TRS, H2S, Pb, Total GHG and CO2e emissions from FGEVAPORATORMOD in tons per calendar year to both the AQD Permit Section Supervisor and the AQD District Supervisor within 60 days following the end of each calendar year identified in FGEVAPORATORMOD SC VI.2 if both of the following apply:~~
   a. ~~The calendar year actual emissions of either PM, PM10, PM2.5, SO2, NOx, CO, VOC, H2SO4, TRS, H2S, Pb, Total GHG or CO2e exceed the baseline actual emissions (BAE) by a significant amount, and~~

~~b. The calendar year actual emissions differ from the pre-construction projection. The pre-construction projection is the sum of the projected actual emissions from each existing emission unit included in the Actual-to-Projected-Actual Applicability Test used for FGEVAPORATORMOD.~~

~~c. The report shall contain the name, address, and telephone number of the facility; the annual emissions as calculated pursuant to FGEVAPORATORMOD, SC VI.5, and any other information the owner or operator wishes to include (i.e., an explanation why emissions differ from the pre-construction projection).[2]~~
~~**(R 336.2818, 40 CFR Part 52.21(r)(6)(c)(iii))**~~

~~**See Appendix 8**~~

~~VIII. STACK/VENT RESTRICTION(S)~~

~~The exhaust gases from the stacks listed in the table below shall be discharged unobstructed vertically upwards to the ambient air unless otherwise noted:~~

~~Stack & Vent ID~~	~~Maximum Exhaust Dimensions (inches)~~	~~Minimum Height Above Ground (feet)~~	~~Underlying Applicable Requirements~~
~~NA~~	~~NA~~	~~NA~~	~~NA~~

~~IX. OTHER REQUIREMENT(S)~~

~~NA~~

~~**Footnotes:**~~
~~[1] This condition is state only enforceable and was established pursuant to Rule 201(1)(b).~~
~~[2] This condition is federally enforceable and was established pursuant to Rule 201(1)(a).~~

~~FGRFMOD~~
~~FLEXIBLE GROUP CONDITIONS~~

Commented [BA5]: Based on VI.2, recordkeeping is no longer needed for this Flexible Group.

~~DESCRIPTION~~

~~Operation of the secondary air forced-draft air handling fan motor (with new fan shaft, impeller, impeller housing, and VFD) for the #10 Recovery Furnace. The larger motor design will safely handle the in-rush of current during startup.~~

~~**Emission Unit:** The FGRFMOD includes the Brownstock System (EUBB23), Chemical Recovery Furnace System (EURF15), Smelt Dissolving Tank System (EUST15), Recausticizing System and Lime Slaker (EUS29), Evaporator System (EUBB05 and EUME05), Digester System (EUOT22, EUBB22, and EUMT22), Steam Stripper System (EUBB33 and EUMC33), Thermal Oxidizer System (EUOC33 and EUSA33), Lime Kiln System (EULK29), Bleach Plant System (EUB25, EUED25, and EUM25), No. 4 Paper Machine (EU4PM64), No. 4 Coater System (EU4C65 and EUSS66), Chip Surge Bin System (EU1SB14 and EU2SB14), Chip Thickness Screening System (EUCS14) and FGFUGITIVE.~~

~~POLLUTION CONTROL EQUIPMENT~~

~~Electrostatic Precipitator on #10 Recovery Furnace (EURF15).~~

~~I. EMISSION LIMIT(S)~~

~~Pollutant~~	~~Limit~~	~~Time Period/ Operating Scenario~~	~~Equipment~~	~~Monitoring/ Testing Method~~	~~Underlying Applicable Requirements~~
~~NA~~	~~NA~~	~~NA~~	~~NA~~	~~NA~~	~~NA~~

~~II. MATERIAL LIMIT(S)~~

~~Material~~	~~Limit~~	~~Time Period/ Operating Scenario~~	~~Equipment~~	~~Monitoring/ Testing Method~~	~~Underlying Applicable Requirements~~
~~NA~~	~~NA~~	~~NA~~	~~NA~~	~~NA~~	~~NA~~

~~III. PROCESS/OPERATIONAL RESTRICTION(S)~~

~~NA~~

~~IV. DESIGN/EQUIPMENT PARAMETER(S)~~

~~NA~~

~~V. TESTING/SAMPLING~~

~~Records shall be maintained on file for a period of five years. **(R 336.1213(3)(b)(ii))**~~

~~NA~~

~~**See Appendix 5**~~

~~VI. MONITORING/RECORDKEEPING~~

~~Records shall be maintained on file for a period of five years. **(R 336.1213(3)(b)(ii))**~~

~~1. The permittee shall complete all required calculations in a format acceptable to the AQD District Supervisor and make them available by the 30th day of the calendar month, for the previous month, unless otherwise specified in any monitoring/recordkeeping special condition.[2] **(R 336.1205, R 336.1301, R 336.1331,**~~

~~**R 336.1901, R 336.1910, R336.2803, R336.2804, 40CFR 52.22(c) and (d))**~~

2. ~~The permittee shall calculate and keep records of CO, Total GHG, and CO_2e emission rates from FGRFMOD, in tons per year on a calendar year basis. The recordkeeping period shall begin on the first day of the month during which the EURF15 and any of the affected emission units commences trial operation with the FGRFMOD (May 13, 2014) and shall continue for 5 years (May 13, 2019). The calculations and records shall be kept in a format acceptable to the Department. The permittee shall keep all records on file and make them available to the Department upon request.[2] **(R 336.1205, R 336.1901, R 336.2802(4)(d), R 336.2818, 40CFR 52.21)**~~

3. ~~The permittee shall monitor, calculate, and record, in a satisfactory manner, the horsepower to the secondary air forced-draft fan on the EURF15 on a daily basis.[2] **(R 336.1205, R 336.1301, R 336.1331, R 336.1901, R 336.1910, R336.2802, 40CFR 52.21)**~~

~~**See Appendix 7**~~

~~VII. REPORTING~~

1. ~~Prompt reporting of deviations pursuant to General Conditions 21 and 22 of Part A. **(R 336.1213(3)(c)(ii))**~~

2. ~~Semiannual reporting of monitoring and deviations pursuant to General Condition 23 of Part A. The report shall be postmarked or received by the appropriate AQD District Office by March 15 for reporting period July 1 to December 31 and September 15 for reporting period January 1 to June 30. **(R 336.1213(3)(c)(i))**~~

3. ~~Annual certification of compliance pursuant to General Conditions 19 and 20 of Part A. The report shall be postmarked or received by the appropriate AQD District Office by March 15 for the previous calendar year. **(R 336.1213(4)(c))**~~

4. ~~Not less than 7 days before performance tests are conducted, the permittee shall notify the AQD District Supervisor in writing of the time and place of the performance tests and who shall conduct them.[2] **(R 336.2001(3))**~~

5. ~~The permittee shall submit records of CO, Total GHG, and CO_2e emissions from FGRFMOD in tons per calendar year to both the AQD Permit Section Supervisor and the AQD District Supervisor within 60 days following the end of each calendar year identified in FGRFMOD Conditions VI.2, VI.3 and VI.4 if both of the following apply:~~
   a. ~~The calendar year actual emissions of either CO, Total GHG, or CO_2e exceed the baseline actual emissions (BAE) by a significant amount, and~~
   b. ~~The calendar year actual emissions differ from the pre-construction projection. The pre-construction projection is the sum of the projected actual emissions from each existing emission unit included in the Actual-to-Projected-Actual Applicability Test used for FGRFMOD.~~

   ~~The report shall contain the name, address, and telephone number of the facility; the annual emissions as calculated pursuant to FGRFMOD, Conditions VI.2, VI.3 and VI.4; and any other information the owner or operator wishes to include (i.e., an explanation why emissions differ from the pre-construction projection).[2] **(R 336.2818, 40 CFR Part 52.21(r)(6)(c)(iii))**~~

6. ~~Within 30 days after completion of the installation, construction, reconstruction, relocation, or modification, the permittee or the authorized agent pursuant to Rule 204, shall notify the AQD District Supervisor, in writing, of the completion of the activity.[2] **(R 336.1201(7)(a))**~~

~~**See Appendix 8**~~

~~VIII. STACK/VENT RESTRICTION(S)~~

~~The exhaust gases from the stacks listed in the table below shall be discharged unobstructed vertically upwards to the ambient air unless otherwise noted:~~

~~Stack & Vent ID~~	~~Maximum Exhaust Dimensions (inches)~~	~~Minimum Height Above Ground (feet)~~	~~Underlying Applicable Requirements~~
~~1. SV51001S~~	~~156[2]~~	~~284[2]~~	~~R 336.1225~~ ~~R 336.2803~~ ~~R 336.2804~~ ~~40 CFR 52.21 (c)(d)~~

~~IX. OTHER REQUIREMENT(S)~~

~~NA~~

~~**Footnotes:**~~
~~[1] This condition is state only enforceable and was established pursuant to Rule 201(1)(b).~~
~~[2] This condition is federally enforceable and was established pursuant to Rule 201(1)(a).~~

~~FG4PM~~
~~FLEXIBLE GROUP CONDITIONS~~

Commented [BA6]: Based on VI.2, recordkeeping is no longer needed for this Flexible Group.

~~DESCRIPTION~~

~~Operation of EU4PM64 No. 4 Paper Machine System to revise production above year 2001 permitted limits through tracking records of emissions and heat input.~~

~~**Emission Unit:** The FG4PM includes the #8 Boiler System (EU8B13), #9 Boiler (EU9B03), #11 Boiler (EU11B68), Chemical Recovery Furnace System (EURF15), No. 4 Paper Machine (EU4PM64), and No. 4 Coater System (EU4C65).~~

~~POLLUTION CONTROL EQUIPMENT~~

~~NA~~

~~I. EMISSION LIMIT(S)~~

~~Pollutant~~	~~Limit~~	~~Time Period/ Operating Scenario~~	~~Equipment~~	~~Monitoring/ Testing Method~~	~~Underlying Applicable Requirements~~
~~NA~~	~~NA~~	~~NA~~	~~NA~~	~~NA~~	~~NA~~

~~II. MATERIAL LIMIT(S)~~

~~Material~~	~~Limit~~	~~Time Period/ Operating Scenario~~	~~Equipment~~	~~Monitoring/ Testing Method~~	~~Underlying Applicable Requirements~~
~~NA~~	~~NA~~	~~NA~~	~~NA~~	~~NA~~	~~NA~~

~~III. PROCESS/OPERATIONAL RESTRICTION(S)~~

~~NA~~

~~IV. DESIGN/EQUIPMENT PARAMETER(S)~~

~~NA~~

~~V. TESTING/SAMPLING~~

~~Records shall be maintained on file for a period of five years. **(R 336.1213(3)(b)(ii))**~~

~~NA~~

~~**See Appendix 5**~~

~~VI. MONITORING/RECORDKEEPING~~

~~Records shall be maintained on file for a period of five years. **(R 336.1213(3)(b)(ii))**~~

1. ~~The permittee shall complete all required calculations in a format acceptable to the AQD District Supervisor and make them available by the 30th day of the calendar month, for the previous calendar month, unless otherwise specified in any monitoring/recordkeeping special condition.[2] **(R 336.1205, R 336.1301, R 336.1331, R 336.1702, R 336.1901, R 336.1910, R336.2803, R336.2804, 40CFR 52.21(c)(d))**~~

~~2. The permittee shall calculate and keep records of PM, PM_{10}, $PM_{2.5}$, SO_2, NO_x, CO, and VOC emission rates from FG4PM project emissions, in tons per year on a calendar year basis. The recordkeeping period shall begin on the first day of the month during which the permit to install for EU4PM64 is issued and shall continue for 5 years. The calculations and records shall be kept in a format acceptable to the Department. The permittee shall keep all records on file and make them available to the Department upon request.[2]~~
~~**(R 336.1205, R 336.2802(4)(d), R 336.2818, 40CFR 52.21)**~~

~~3. The permittee shall monitor and record, in a satisfactory manner, the amount of steam delivered, on an MMBtu basis, per calendar month to EU4PM64 of FG4PM. The calculations and records shall be kept in a format acceptable to the Department. The permittee shall keep all records on file and make them available to the Department upon request.[2] **(R 336.1205(1)(a))**~~

~~4. The permittee shall calculate and keep records of Btu per ton of paper produced from EU4PM64 of FG4PM, on a 12-month rolling time period basis. The recordkeeping period shall begin on the first day of the month during which the permit to install for EU4PM64 is issued (September 24, 2012) and shall continue for 5 years (September 24, 2017). The calculations and records shall be kept in a format acceptable to the Department. The permittee shall keep all records on file and make them available to the Department upon request.[2]~~
~~**(R 336.1205, R 336.2802(4)(d), R 336.2818, 40 CFR 52.21)**~~

~~**See Appendix 7**~~

~~VII. REPORTING~~

~~1. Prompt reporting of deviations pursuant to General Conditions 21 and 22 of Part A. **(R 336.1213(3)(c)(ii))**~~

~~2. Semiannual reporting of monitoring and deviations pursuant to General Condition 23 of Part A. The report shall be postmarked or received by the appropriate AQD District Office by March 15 for reporting period July 1 to December 31 and September 15 for reporting period January 1 to June 30. **(R 336.1213(3)(c)(i))**~~

~~3. Annual certification of compliance pursuant to General Conditions 19 and 20 of Part A. The report shall be postmarked or received by the appropriate AQD District Office by March 15 for the previous calendar year.~~
~~**(R 336.1213(4)(c))**~~

~~4. The permittee shall submit records of emissions, for FG4PM, as described in SC VI.2, to both the AQD Permit Section Supervisor and the AQD District Supervisor within 60 days following the end of the each calendar year, if the calendar year actual emissions of PM, PM_{10}, $PM_{2.5}$, SO_2, NO_x, VOC or CO exceed the baseline actual emissions (BAE) by a significant amount. The report shall contain the name, address, and telephone number of the facility; the annual emissions as calculated pursuant to SC VI.2 and any other information the owner or operator wishes to include (i.e. an explanation why emissions differ from the pre-construction projection).[2]~~
~~**(R 336.1205, R 336.2802(4)(d), R 336.2818, 40 CFR 52.21)**~~

~~**See Appendix 8**~~

~~VIII. STACK/VENT RESTRICTION(S)~~

~~The exhaust gases from the stacks listed in the table below shall be discharged unobstructed vertically upwards to the ambient air unless otherwise noted:~~

~~Stack & Vent ID~~	~~Maximum Exhaust Dimensions (inches)~~	~~Minimum Height Above Ground (feet)~~	~~Underlying Applicable Requirements~~
~~NA~~	~~NA~~	~~NA~~	~~NA~~

~~IX. OTHER REQUIREMENT(S)~~

~~NA~~

~~**Footnotes:**~~
~~[1] This condition is state only enforceable and was established pursuant to Rule 201(1)(b).~~

~~[2] **This condition is federally enforceable and was established pursuant to Rule 201(1)(a).**~~

FGBMACTB09B11 -Existing Hybrid Suspension Grate Boilers FLEXIBLE GROUP CONDITIONS

DESCRIPTION

The #9 Boiler and #11 Boiler fall under the Existing Hybrid suspension grate boiler subcategory in Table 2 of **40 CFR 63.7500, commonly known as Industrial Boiler MACT**

The #9 Boiler (EU9B03) is a Babcock & Wilcox boiler rated for 250,000 pounds of steam per hour (approximately 360 million BTU per hour heat input) that provides steam for mill processes and steam turbine-generators for producing electricity. The #9 boiler burns primarily wood residue, but may also burn natural gas, and paper cores.

The #11 Boiler (EU11B68), installed 1981, modified 1986, is an ABB Combustion Engineering combination fuel boiler rated for 750,000 pounds of steam per hour (approximately 1040 million BTU per hour heat input) that provides steam for mill processes and steam turbine-generators for producing electricity. The #11 Boiler burns natural gas and solid fuels, which include pulverized coal, wood residue, wastewater treatment plant residuals, Tire-Derived Fuel (TDF), and non-hazardous secondary material (NHSM) pellets.

Emission Units: EU9B03, EU11B68

POLLUTION CONTROL EQUIPMENT

Multiclone and two wet scrubbers on the #9 boiler exhaust; Over-fired Air System (OFA) modified 2012, Multiclone and Electrostatic Precipitator on EU11B68

I. EMISSION LIMIT(S)

Pollutant	Limit	Time Period/ Operating Scenario	Equipment	Monitoring/ Testing Method	Underlying Applicable Requirements
1. CO	The permittee shall comply with ONE of the following: (a) 3500 ppmv, dry @ 3% O2 oxygen; OR (b) 3.5 lb/MMBTU steam output	At all times except during startup and shutdown(a)	EU9B03 EU11B68	SC V.1	**40 CFR 63.7500 Table 2.13 a**

Pollutant	Limit	Time Period/ Operating Scenario	Equipment	Monitoring/ Testing Method	Underlying Applicable Requirements
2. HCl	The permittee shall comply with ONE of the following: (a) 2.2 E-02 lb/MMBtu of heat input; OR (b) 2.5 E-02 lb/MMBtu steam output	At all times except during startup and shutdown(a)	EU9B03 EU11B68	SC V.1	**40 CFR 63.7500 Table 2.1 a**
3. Mercury	The permittee shall comply with ONE of the following: (a) 5.7E-06 lb per MMBtu of heat input; OR (b) 6.4E-06 lb per MMBtu of steam output .	At all times except during startup and shutdown(a)	EU9B03 EU11B68	SC V.1	**40 CFR 63.7500 Table 2.1 b**
4. Filterable PM (or TSM)	The permittee shall comply with ONE of the following: (a) 4.4E-01 lb per MMBtu of heat input; or (4.5E-04 lb per MMBtu of heat input) (b) 5.5E-01 lb per MMBtu of steam output or 6.2 lb per MWh; or (5.7E-04 lb per MMBtu of steam output or 6.3E-03 lb per MWh)t	At all times except during startup and shutdown(a)	EU9B03 EU11B68	SC V.1	**40 CFR 63.7500 Table 2.13b**
5. Visible Emissions	10% Opacity	Existing and new boilers and process heaters must maintain opacity to less than or equal to 10 percent opacity (daily block average) or the requirements in 40 CFR 63.7500 table 4.4.	EU11B68	SC III.4(b)	**40 CFR 63.7500 Table 4.4**

Pollutant	Limit	Time Period/ Operating Scenario	Equipment	Monitoring/ Testing Method	Underlying Applicable Requirements
** Measured at operating conditions. **a) These standards apply at all times of operation, except during periods of startup and shutdown, during which time the permittee must comply only with items 5 and 6 of Table 3 of 40 CFR Part 63, Subpart DDDDD. (40 CFR 63.7500(f))**					

II. MATERIAL LIMIT(S)

Material	Limit	Time Period/ Operating Scenario	Equipment	Monitoring/ Testing Method	Underlying Applicable Requirements
NA	NA	NA	NA	NA	**NA**

III. PROCESS/OPERATIONAL RESTRICTION(S)

1. The permittee must meet the requirements in paragraphs (a)(1) through (3) of 40 CFR 63.7500, as listed below, except as provided in paragraphs (b) through (e) of 40 CFR 63.7500, stated in SC III.7. The permittee must meet these requirements at all times the affected unit is operating, except as provided in paragraph (f) of 40 CFR 63.7500, stated in SC III.8. **(40 CFR 63.7500(a))**
    a. The permittee must meet each emission limit and work practice standard in Tables 2 and 3 of 40 CFR Part 63, Subpart DDDDD that applies to FGBMACTB09B11, except as provided under 40 CFR 63.7522. The output-based emission limits, in units of pounds per million Btu of steam output, in Table 2 of 40 CFR Part 63, Subpart DDDDD are an alternative applicable only to boilers and process heaters that generate steam, cogenerate steam with electricity, or both. The output-based emission limits, in units of pounds per megawatt-hour, in Table 2 of 40 CFR Part 63, Subpart DDDDD, are an alternative applicable only to boilers that generate electricity. **(40 CFR 63.7500(a)(1))**
    b. The permittee must meet each operating limit in Table 4 of 40 CFR Part 63, Subpart DDDDD that applies to the boiler or process heater. If the permittee uses a control device or combination of control devices not covered in Table 4 of 40 CFR Part 63, Subpart DDDDD, or the permittee wishes to establish and monitor an alternative operating limit or an alternative monitoring parameter, the permittee must apply to the USEPA Administrator for approval of alternative monitoring under 40 CFR 63.8(f). **(40 CFR 63.7500(a)(2))**
    c. At all times, the permittee must operate and maintain any affected source (as defined in 40 CFR 63.7490), including associated air pollution control equipment and monitoring equipment, in a manner consistent with safety and good air pollution control practices for minimizing emissions. Determination of whether such operation and maintenance procedures are being used will be based on information available to the Administrator that may include, but is not limited to, monitoring results, review of operation and maintenance procedures, review of operation and maintenance records, and inspection of the source. **(40 CFR 63.7500(a)(3))**
2. As provided in 40 CFR 63.6(g), USEPA may approve use of an alternative to the work practice standards in 40 CFR 63.7500. **(40 CFR 63.7500(b))**
3. These standards apply at all times of operation, except during periods of startup and shutdown, during which time the permittee must comply only with items 5 and 6 of Table 3 of 40 CFR Part 63, Subpart DDDDD. **(40 CFR 63.7500(f), 40 CFR 63.7540(d))**
4. The permittee must conduct an annual performance tune-up according to 40 CFR 63.7540(a)(10), stated in Appendix 11-1 or 5-year performance tune-up according to 40 CFR 63.7540(a)(12), stated in Appendix 11-1. Each annual tune-up specified in 40 CFR 63.7540(a)(10) must be no more than 13 months after the previous tune-up. Each 5-year tune-up specified in 40 CFR 63.7540(a)(12) must be conducted no more than 61 months after the previous tune-up. **(40 CFR 63.7515(d))**

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IV. DESIGN/EQUIPMENT PARAMETER(S)

NA

V. TESTING/SAMPLING

1. The permittee must demonstrate compliance with all applicable emission limits using performance stack testing, fuel analysis, or continuous monitoring systems (CMS), including a continuous emission monitoring system (CEMS), continuous opacity monitoring system (COMS), continuous parameter monitoring system (CPMS), or particulate matter continuous parameter monitoring system (PM CPMS), where applicable. The permittee may demonstrate compliance with the applicable emission limit for hydrogen chloride (HCl), mercury, or total selected metals (TSM) using fuel analysis if the emission rate calculated according to 40 CFR 63.7530(c), stated in Appendix 10-1, is less than the applicable emission limit. (For gaseous fuels, the permittee may not use fuel analyses to comply with the TSM alternative standard or the HCl standard.) Otherwise, the permittee must demonstrate compliance for HCl, mercury, or TSM using performance testing, if subject to an applicable emission limit listed in Table 2 of 40 CFR Part 63, Subpart DDDDD, stated in SC I.2, SC I.3, SC I.14, and SC I.15. (40 CFR 63.7505(c))
2. The permittee must conduct each performance test according to the requirements in Table 5 of 40 CFR Part 63, Subpart DDDDD. (40 CFR 63.7520(b))
3. The permittee must conduct all applicable performance tests according to 40 CFR 63.7520, stated in SC V.5 and SC V.9 through SC V.13, on an annual basis (no more than 13 months after the previous performance test), except as specified in paragraphs (b) through (e), (g), and (h) of 40 CFR 63.7515, stated in SC III.9, SC V.7, SC V.8, V.14 and SC IX.5. (40 CFR 63.7515(a)) If the performance tests for a given pollutant for at least 2 consecutive years show that the emissions are at or below 75 percent of the emission limit (or, in limited instances as specified in Table 2 of 40 CFR Part 63, Subpart DDDDD, stated in SC I.2, SC I.4, SC I.15, and SC I.16, at or below the emission limit) for the pollutant, and if there are no changes in the operation of the FGBMACTB09B11 or air pollution control equipment that could increase emissions, the permittee may choose to conduct performance tests for the pollutant every third year. Each such performance test must be conducted no more than 37 months after the previous performance test. The requirement to test at maximum chloride input level is waived unless the stack test is conducted for HCl. The requirement to test at maximum mercury input level is waived unless the stack test is conducted for mercury. The requirement to test at maximum TSM input level is waived unless the stack test is conducted for TSM. (40 CFR 63.7515(b))
4. If a performance test shows emissions exceeded the emission limit or 75 percent of the emission limit (as specified in Table 2 of 40 CFR Part 63, Subpart DDDDD, stated in SC I.2, SC I.4, SC I.15, and SC I.16) for a pollutant, the permittee must conduct annual performance tests for that pollutant until all performance tests over a consecutive 2-year period meet the required level (at or below 75 percent of the emission limit, as specified in Table 2 of 40 CFR Part 63, Subpart DDDDD, stated in SC I.2, SC I.4, SC I.15, and SC I.16). (40 CFR 63.7515(c))
5. The permittee must conduct all performance tests according to 40 CFR 63.7(c), (d), (f), and (h). The permittee must also develop a site-specific stack test plan according to the requirements in 40 CFR 63.7(c). The permittee shall conduct all performance tests under such conditions as the Administrator specifies to the permittee based on the representative performance of the boiler for the period being tested. Upon request, the permittee shall make available to the Administrator such records as may be necessary to determine the conditions of the performance tests. (40 CFR 63.7520(a))
6. The permittee must conduct each performance test under the specific conditions listed in Tables 5 and 7 of 40 CFR Part 63, Subpart DDDDD. The permittee must conduct performance tests at representative operating load conditions while burning the type of fuel or mixture of fuels that has the highest content of chlorine and mercury, and TSM if the permittee is opting to comply with the TSM alternative standard and the permittee must demonstrate initial compliance and establish the operating limits based on these performance tests. These requirements could result in the need to conduct more than one performance test. Following each performance test and until the next performance test, the permittee must comply with the operating limit for operating load conditions specified in Table 4 of 40 CFR Part 63, Subpart DDDDD. (40 CFR 63.7520(c))
7. The permittee must conduct a minimum of three separate test runs for each performance test required in 40 CFR 63.7520, as specified in 40 CFR 63.7(e)(3). Each test run must comply with the minimum applicable sampling times or volumes specified in Table 2 of 40 CFR Part 63, Subpart DDDDD. (40 CFR 63.7520(d))
8. To determine compliance with the emission limits, the permittee must use the F-Factor methodology and equations in sections 12.2 and 12.3 of USEPA Method 19 at 40 CFR Part 60, Appendix A-7 to convert the measured particulate matter (PM) concentrations, the measured HCl concentrations, the measured mercury

concentrations, and the measured TSM concentrations that result from the performance test to pounds per million Btu heat input emission rates. (40 CFR 63.7520(e)

9. Except for a 30-day rolling average based on CEMS (or sorbent trap monitoring system) data, if measurement results for any pollutant are reported as below the method detection level (e.g., laboratory analytical results for one or more sample components are below the method defined analytical detection level), the permittee must use the method detection level as the measured emissions level for that pollutant in calculating compliance. The measured result for a multiple component analysis (e.g., analytical values for multiple Method 29 fractions both for individual HAP metals and for total HAP metals) may include a combination of method detection level data and analytical data reported above the method detection level. (40 CFR 63.7520(f))
10. If you demonstrate compliance with the mercury and/or HCl emission limits, stated in SC I.14 and SC I.15, based on fuel analysis, you must conduct a monthly fuel analysis according to 40 CFR 63.7521 for each type of fuel burned that is subject to an emission limit in Tables 1, 2, or 11 through 13 to this subpart. You may comply with this monthly requirement by completing the fuel analysis any time within the calendar month as long as the analysis is separated from the previous analysis by at least 14 calendar days. If you burn a new type of fuel, you must conduct a fuel analysis before burning the new type of fuel in your boiler or process heater. You must still meet all applicable continuous compliance requirements in 40 CFR 63.7540. If each of 12 consecutive monthly fuel analyses demonstrates 75 percent or less of the compliance level, you may decrease the fuel analysis frequency to quarterly for that fuel. If any quarterly sample exceeds 75 percent of the compliance level or you begin burning a new type of fuel, you must return to monthly monitoring for that fuel, until 12 months of fuel analyses are again less than 75 percent of the compliance level. If sampling is conducted on one day per month, samples should be no less than 14 days apart, but if multiple samples are taken per month, the 14-day restriction does not apply. (40 CFR 63.7515(e))

See Appendix 5

VI. MONITORING/RECORDKEEPING

1. If the permittee demonstrates compliance with any applicable emission limit through performance testing and subsequent compliance with operating limits through the use of CPMS, or with a CEMS or COMS, the permittee must develop a site-specific monitoring plan according to the requirements in paragraphs (d)(1) through (4) of 40 CFR 63.7505 for the use of any CEMS, COMS, or CPMS. This requirement also applies to the permittee if the permittee petitions the USEPA Administrator for alternative monitoring parameters under 40 CFR 63.8(f). (40 CFR 63.7505(d))
2. If FGBMACTB09B11 is subject to a CO emission limit in Table 2 of 40 CFR Part 63, Subpart DDDDD, the permittee must install, operate, and maintain an oxygen analyzer system, as defined in 40 CFR 63.7575, or install, certify, operate and maintain continuous emission monitoring systems for CO and oxygen according to the procedures in paragraphs (a)(1) through (6) of 40 CFR 63.7525. Alternately, the permittee may operate an oxygen trim system with the oxygen level set no lower than the lowest hourly average oxygen concentration measured during the most recent CO performance test as the operating limit for oxygen according to Table 7 of 40 CFR Part 63, Subpart DDDDD. (40 CFR 63.7525(a), 40 63.7525(a)(7))
3. If the permittee has an applicable opacity operating limit in this rule, the permittee must install, operate, certify and maintain each COMS according to the procedures in paragraphs (c)(1) through (7) of 40 CFR 63.7525. (40 CFR 63.7525(c))
4. If the permittee has an operating limit that requires the use of a CMS other than a PM CPMS or COMS, the permittee must install, operate, and maintain each CMS according to the procedures in paragraphs (d)(1) through (5) of 40 CFR 63.7525. (40 CFR 63.7525(d))
5. The permittee must monitor and collect data according to 40 CFR 63.7535 and the site-specific monitoring plan required by 40 CFR 63.7505(d), stated in SC VI.8. (40 CFR 63.7535(a))
6. The permittee must operate the monitoring system and collect data at all required intervals at all times that the boiler is operating and compliance is required, except for periods of monitoring system malfunctions or out of control periods (see 40 CFR 63.8(c)(7)), and required monitoring system quality assurance or control activities, including, as applicable, calibration checks, required zero and span adjustments, and scheduled CMS maintenance as defined in the site-specific monitoring plan. A monitoring system malfunction is any sudden, infrequent, not reasonably preventable failure of the monitoring system to provide valid data. Monitoring system failures that are caused in part by poor maintenance or careless operation are not malfunctions. The permittee is required to complete monitoring system repairs in response to monitoring

system malfunctions or out-of-control periods and to return the monitoring system to operation as expeditiously as practicable. (40 CFR 63.7535(b))

7. The permittee may not use data recorded during monitoring system malfunctions or out-of-control periods, repairs associated with monitoring system malfunctions, out-of-control periods, or required monitoring system quality assurance or control activities in data averages and calculations used to report emissions or operating levels. The permittee must record and make available upon request results of CMS performance audits and dates and duration of periods when the CMS is out of control to completion of the corrective actions necessary to return the CMS to operation consistent with the site-specific monitoring plan. The permittee must use all the data collected during all other periods in assessing compliance and the operation of the control device and associated control system. (40 CFR 63.7535(c))
8. Except for periods of monitoring system malfunctions, repairs associated with monitoring system malfunctions, and required monitoring system quality assurance or quality control activities (including, as applicable, system accuracy audits, calibration checks, and required zero and span adjustments), failure to collect required data is a deviation of the monitoring requirements. In calculating monitoring results, do not use any data collected during periods when the monitoring system is out of control as specified in the site-specific monitoring plan, while conducting repairs associated with periods when the monitoring system is out of control, or while conducting required monitoring system quality assurance or quality control activities. The permittee must calculate monitoring results using all other monitoring data collected while the process is operating. The permittee must report all periods when the monitoring system is out of control in the annual report. (40 CFR 63.7535(d))
9. The permittee must keep records according to paragraphs (a)(1) and (2) of 40 CFR 63.7555, as listed below. (40 CFR 63.7555(a))
10. A copy of each notification and report that the permittee submitted to comply with 40 CFR Part 63, Subpart DDDDD, including all documentation supporting any Initial Notification or Notification of Compliance Status or semiannual compliance report that the permittee submitted, according to the requirements in 40 CFR 63.10(b)(2)(xiv). (40 CFR 63.7555(a)(1))
11. Records of performance tests, fuel analyses, or other compliance demonstrations and performance evaluations as required in 40 CFR 63.10(b)(2)(viii). (40 CFR 63.7555(a)(2))
12. For each CEMS, COMS, and continuous monitoring system the permittee must keep records according to paragraphs (b)(1) through (5) of 40 CFR 63.7555, as listed below. (40 CFR 63.7555(b))
13. Records described in 40 CFR 63.10(b)(2)(vii) through (xi). (40 CFR 63.7555(b)(1))
14. Monitoring data for continuous opacity monitoring system during a performance evaluation as required in 40 CFR 63.6(h)(7)(i) and (ii). (40 CFR 63.7555(b)(2))
15. Previous (i.e., superseded) versions of the performance evaluation plan as required in 40 CFR 63.8(d)(3). (40 CFR 63.7555(b)(3))
16. Request for alternatives to relative accuracy test for CEMS as required in 40 CFR 63.8(f)(6)(i). (40 CFR 63.7555(b)(4))
17. Records of the date and time that each deviation started and stopped. (40 CFR 63.7555(b)(5))
18. The permittee must keep the records required in Table 8 of 40 CFR Part 63, Subpart DDDDD including records of all monitoring data and calculated averages for applicable operating limits, such as opacity and operating load, to show continuous compliance with each emission limit and operating limit that applies to the permittee. (40 CFR 63.7555(c))
19. For FGBMACTB09B119 subject to an emission limit in Table 2 of 40 CFR Part 63, Subpart DDDDD, stated in SC I.2, I.4, I.15 and I.16, the permittee must also keep the applicable records in paragraphs (d)(1) through (11) of 40 CFR 63.7555, as listed below. (40 CFR 63.7555(d))
20. The permittee must keep records of monthly fuel use by FGBMACTB09B11, including the type(s) of fuel and amount(s) used. (40 CFR 63.7555(d)(1))
21. If the permittee combusts non-hazardous secondary materials in FGBMACTB09B11, the permittee must keep records according to 40 CFR 63.7555(d)(2). (40 CFR 63.7555(d)(2))
22. A copy of all calculations and supporting documentation of maximum chlorine fuel input, using Equation 7 of 40 CFR 63.7530, stated in Appendix 9-1, that were done to demonstrate continuous compliance with the HCl emission limit, for sources that demonstrate compliance through performance testing. For sources that demonstrate compliance through fuel analysis, a copy of all calculations and supporting documentation of HCl emission rates, using Equation 16 of 40 CFR 63.7530, stated in Appendix 10-1, that were done to demonstrate compliance with the HCl emission limit. Supporting documentation should include results of any fuel analyses and basis for the estimates of maximum chlorine fuel input or HCl emission rates. (40 CFR 63.7555(d)(3))

23. A copy of all calculations and supporting documentation of maximum mercury fuel input, using Equation 8 of 40 CFR 63.7530, stated in Appendix 9-1, that were done to demonstrate continuous compliance with the mercury emission limit for sources that demonstrate compliance through performance testing. For sources that demonstrate compliance through fuel analysis, a copy of all calculations and supporting documentation of mercury emission rates, using Equation 17 of 40 CFR 63.7530, stated in Appendix 10-1, that were done to demonstrate compliance with the mercury emission limit. Supporting documentation should include results of any fuel analyses and basis for the estimates of maximum mercury fuel input or mercury emission rates. (40 CFR 63.7555(d)(4))
24. If, consistent with 40 CFR 63.7515(b), stated in SC V.8, the permittee chooses to stack test less frequently than annually, the permittee must keep a record that documents that the emissions in the previous stack test(s) were less than 75 percent of the applicable emission limit (or, in specific instances noted in Table 2 of 40 CFR Part 63, Subpart DDDDD, less than the applicable emission limit), and document that there was no change in source operations including fuel composition and operation of air pollution control equipment that would cause emissions of the relevant pollutant to increase within the past year. (40 CFR 63.7555(d)(5))
25. Records of the occurrence and duration of each malfunction of the boiler or process heater, or of the associated air pollution control and monitoring equipment. (40 CFR 63.7555(d)(6))
26. Records of actions taken during periods of malfunction to minimize emissions in accordance with the general duty to minimize emissions in 40 CFR 63.7500(a)(3), stated in SC III.6, including corrective actions to restore the malfunctioning boiler or process heater, air pollution control, or monitoring equipment to its normal or usual manner of operation. (40 CFR 63.7555(d)(7))
27. The permittee must maintain records of the calendar date, time, occurrence and duration of each startup and shutdown. (40 CFR 63.7555(d)(9))
28. The permittee must maintain records of the type(s) and amount(s) of fuels used during each startup and shutdown of FGBMACTB09B11. (40 CFR 63.7555(d)(10)) Records must be in a form suitable and readily available for expeditious review, according to 40 CFR 63.10(b)(1). **(40 CFR 63.7560(a))**
29. As specified in 40 CFR 63.10(b)(1), the permittee must keep each record for 5 years following the date of each occurrence, measurement, maintenance, corrective action, report, or record. **(40 CFR 63.7560(b))**
30. The permittee must keep each record on site, or they must be accessible from on-site (for example, through a computer network), for at least 2 years after the date of each occurrence, measurement, maintenance, corrective action, report, or record, according to 40 CFR 63.10(b)(1). The permittee can keep the records off site for the remaining 3 years. **(40 CFR 63.7560(c))**

VII. REPORTING

1. The permittee must meet the notification requirements in 40 CFR 63.7545 according to the schedule in 40 CFR 63.7545, and in Subpart A of 40 CFR 63. (40 CFR 63.7495(d))
2. The permittee must report the results of performance tests and the associated fuel analyses within 60 days after the completion of the performance tests. This report must also verify that the operating limits for each boiler or process heater have not changed or provide documentation of revised operating limits established according to 40 CFR 63.7530 and Table 7 to 40 CFR Part 63, Subpart DDDDD, as applicable. The reports for all subsequent performance tests must include all applicable information required in 40 CFR 63.7550. (40 CFR 63.7515(f))
3. The permittee must report each instance in which the permittee did not meet each emission limit and operating limit in Tables 2 through 4 of 40 CFR Part 63, Subpart DDDDD that apply to the permittee. These instances are deviations from the emission limits or operating limits, respectively, in 40 CFR Part 63, Subpart DDDDD. These deviations must be reported according to the requirements in 40 CFR 63.7550, stated in SC VII.13 and SC VII.14. (40 CFR 63.7540(b))
4. The permittee must submit to the Administrator all of the notifications in 40 CFR 63.7(b) and (c), 40 CFR 63.8(e), (f)(4) and (6), and 40 CFR 63.9(b) through (h) that apply to the permittee by the dates specified. (40 CFR 63.7545(a))
5. If the permittee has switched fuels or made a physical change to FGBMACTB09B11and the fuel switch or physical change resulted in the applicability of a different subcategory, the permittee must provide notice of the date upon which the permittee switched fuels or made the physical change within 30 days of the switch/change. The notification must identify:
    a. The name of the owner or operator of the affected source, as defined in 40 CFR 63.7490, the location of the source, the boiler(s) and process heater(s) that have switched fuels, were physically changed, and the date of the notice. (40 CFR 63.7545(h)(1))

   b. The currently applicable subcategory under 40 CFR Part 63, Subpart DDDDD. (40 CFR 63.7545(h)(2))
   c. The date upon which the fuel switch or physical change occurred. (40 CFR 63.7545(h)(3))
6. The permittee must submit each report in Table 9 of 40 CFR Part 63, Subpart DDDDD that applies to the permittee. (40 CFR 63.7550(a))
7. Unless the USEPA Administrator has approved a different schedule for submission of reports under 40 CFR 63.10(a), the permittee must submit each report, according to paragraph (h) of 40 CFR 63.7550 by the date in Table 9 of 40 CFR Part 63, Subpart DDDDD and according to the requirements in paragraphs (b)(1) through (4) of 40 CFR 63.7550, as listed below. For units that are subject only to a requirement to conduct an annual, biennial, or 5-year tune-up according to 40 CFR 63.7540 (a)(10), (11), or (12), respectively, and not subject to emission limits or Table 4 operating limits, the permittee may submit only an annual, biennial, or 5-year compliance report, as applicable as specified below, instead of a semi-annual compliance report. (40 CFR 63.7550(b))
   a. The first semi-annual compliance report must cover the period beginning on the compliance date that is specified for each boiler or process heater in 40 CFR 63.7495, January 31, 2016 or as otherwise specified in 40 CFR 63.6(i), and ending on June 30 or December 31, whichever date is the first date that occurs at least 180 days after the compliance date that is specified for the source in 40 CFR 63.7495, January 31, 2016 or as otherwise specified in 40 CFR 63.6(i). If submitting an annual, biennial, or 5-year compliance report, the first compliance report must cover the period beginning on the compliance date that is specified for each boiler or process heater in 40 CFR 63.7495 and ending on December 31 within 1, 2, or 5 years, as applicable, after the compliance date that is specified in 40 CFR 63.7495. (40 CFR 63.7550(b)(1))
   b. The first semi-annual compliance report must be postmarked or submitted no later than July 31 or January 31, whichever date is the first date following the end of the first calendar half after the compliance date that is specified for each boiler or process heater in 40 CFR 63.7495, January 31, 2016, or as otherwise specified in 40 CFR 63.6(i). The first annual, biennial, or 5-year compliance report must be postmarked or submitted no later than January 31. (40 CFR 63.7550(b)(2))
   c. Each subsequent semi-annual compliance report must cover the semiannual reporting period from January 1 through June 30 or the semiannual reporting period from July 1 through December 31. Annual, biennial, and 5-year compliance reports must cover the applicable 1-, 2-, or 5-year periods from January 1 to December 31. (40 CFR 63.7550(b)(3))
   d. Each subsequent compliance report must be postmarked or submitted no later than September 15 or March 15, whichever date is the first date following the end of the semiannual reporting period. Annual, biennial, and 5-year compliance reports must be postmarked or submitted no later than March 15. (40 CFR 63.7550(b)(4))

See Appendix 8

VIII. STACK/VENT RESTRICTION(S)

NA

IX. OTHER REQUIREMENT(S)

1. The permittee shall comply with the provisions of the National Emission Standards for Hazardous Air Pollutants, as specified in 40 CFR Part 63, Subpart A and Subpart DDDDD, as they apply to FGBMACTB09B11, by the initial compliance date. **(40 CFR Part 63, Subparts A and DDDDD)**

FGBMACTB07B08 – Existing Boiler Units Designed to Burn Gas 1 FLEXIBLE GROUP CONDITIONS

DESCRIPTION

The #7 Boiler and #8 Boiler fall under the Existing boiler units designed to burn gas 1 subcategory in Table 2 of **40 CFR 63.7500, commonly known as Industrial Boiler MACT**

The #7 Boiler (EU7B17) is a Riley boiler rated for 150,000 pounds of steam per hour (approximately 154 million BTU per hour heat input) that provides steam for mill processes. The #7 Boiler burns natural gas and fuel oil.

The #8 Boiler (EU8B13) is a Combustion Engineering boiler rated for 450,000 pounds of steam per hour (approximately 594 million BTU per hour heat input) that provides steam for mill processes and steam turbine-generator sets for producing electricity. A Flue Gas Recirculation system was installed on the #8 Boiler. The #8 Boiler burns natural gas and fuel oil.

Emission Units: EU7B17, EU8B13

POLLUTION CONTROL EQUIPMENT

NA

I. EMISSION LIMIT(S)

Pollutant	Limit	Time Period/ Operating Scenario	Equipment	Monitoring/ Testing Method	Underlying Applicable Requirements
NA	NA	NA	NA	NA	NA

II. MATERIAL LIMIT(S)

Material	Limit	Time Period/ Operating Scenario	Equipment	Monitoring/ Testing Method	Underlying Applicable Requirements
NA	NA	NA	NA	NA	NA

III. PROCESS/OPERATIONAL RESTRICTION(S)

1. The permittee must meet the tune-up and Energy Assessment work practice standards for FGBMACTB07B08at the source. **(40 CFR 63.7500(a)(1), 40 CFR Part 63, Subpart DDDDD, Table 3, Nos. 1-4)**
2. The permittee must operate and maintain affected sources in a manner consistent with safety and good air pollution control practices for minimizing emissions. Determination of whether such operation and maintenance procedures are being used will be based on information available to the Administrator that may include, but is not limited to, monitoring results, review of operation and maintenance procedures, review of operation and maintenance records, and inspection of the source. **(40 CFR 63.7500(a)(3))**
3. The permittee may obtain approval from the Administrator to use an alternative to the work practice standards noted in SC III.1 and/or SC III.2. **(40 CFR 63.7500(b))**
4. The permittee must conduct an annual performance tune-up according to 40 CFR 63.7540(a)(10), stated in Appendix 11-1 or 5-year performance tune-up according to 40 CFR 63.7540(a)(12), stated in Appendix 11-1. Each annual tune-up specified in 40 CFR 63.7540(a)(10) must be no more than 13 months after the previous tune-up. Each 5-year tune-up specified in 40 CFR 63.7540(a)(12) must be conducted no more than 61 months after the previous tune-up. (**40 CFR 63.7515(d))**

IV. DESIGN/EQUIPMENT PARAMETER(S)

NA

V. TESTING/SAMPLING

NA

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VI. MONITORING/RECORDKEEPING

1. The permittee must keep a copy of each notification and report submitted to comply with 40 CFR Part 63, Subpart DDDDD, including all documentation supporting any Initial Notification or Notification of Compliance Status or semiannual compliance report that the permittee submitted, according to the requirements in 40 CFR 63.10(b)(2)(xiv). **(40 CFR 63.7555(a)(1))**
2. The permittee must keep each record on site, or they must be accessible from on-site (for example, through a computer network), for at least 2 years after the date of each occurrence, measurement, maintenance, corrective action, report, or record. The permittee can keep the records off site for the remaining 3 years. **(40 CFR 63.7560(a), (b), and (c))**

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VII. REPORTING

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1. The permittee must submit boiler tune-up compliance reports. Annual or 5 year compliance reports must cover the applicable 1 or 5 year periods from January 1 to December 31. Compliance reports must be postmarked or submitted no later than January 31. Compliance reports must be submitted using the Compliance and Emissions Data Reporting Interface (CEDRI) which is accessed through the USEPA's Central Data Exchange (CDX) (https://cdx.epa.gov/). The permittee must use the appropriate electronic report in CEDRI for 40 CFR Part 63, Subpart DDDDD. Instead of using the electronic report in CEDRI for 40 CFR Part 63, Subpart DDDDD, the permittee may submit an alternate electronic file consistent with the XML schema listed on the CEDRI Web site (https://www3.epa.gov/ttn/chief/cedri/index.html), once the XML schema is available. If the reporting form specific to 40 CFR Part 63, Subpart DDDDD is not available in CEDRI at the time that the report is due, the permittee must submit the report to the Administrator at the appropriate address listed in 40 CFR 63.13. The permittee must begin submitting reports via CEDRI no later than 90-days after the form becomes available in CEDRI. (40 CFR 63.7550(b), 40 CFR 63.10(a)(5), 40 CFR 63.7550(h))
2. The permittee must include the following information in the compliance report. (40 CFR 63.7550(c), 40 CFR 63.7550(c)(1))
   a) Company and Facility name and address. (40 CFR 63.7550(c)(5)(i))
   b) Process unit information, emissions limitations, and operating parameter limitations. (40 CFR 63.7550(c)(5)(ii))
   c) Date of report and beginning and ending dates of the reporting period. (40 CFR 63.7550(c)(5)(iii))
   d) Include the date of the most recent tune-up for each unit. Include the date of the most recent burner inspection if it was not done annually, biennially, or on a 5-year period and was delayed until the next scheduled or unscheduled unit shutdown. (40 CFR 63.7550(c)(5)(xiv)
   e) Statement by a responsible official with that official's name, title, and signature, certifying the truth, accuracy, and completeness of the content of the report. (40 CFR 63.7550(c)(5)(xvii)

VIII. STACK/VENT RESTRICTION(S)

NA

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IX. OTHER REQUIREMENT(S)

NA

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Footnotes:

E. NON-APPLICABLE REQUIREMENTS

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At the time of the ROP issuance, the AQD has determined that the requirements identified in the table below are not applicable to the specified emission unit(s) and/or flexible group(s). This determination is incorporated into the permit shield provisions set forth in the General Conditions in Part A pursuant to Rule 213(6)(a)(ii). If the permittee makes a change that affects the basis of the non-applicability determination, the permit shield established as a result of that non-applicability decision is no longer valid for that emission unit or flexible group.

Emission Unit/Flexible Group ID	Non-Applicable Requirement	Justification
Entire Mill	40 CFR Part 61, Subpart M (All except for 40 CFR 61.145, 61.150, and 61.154)	Asbestos containing products are not processed or manufactured at the Mill and the Mill is only subject to the regulations associated with removal and disposal of asbestos containing materials.
Entire Mill	40 CFR Part 63, Subpart Q	Cooling towers at the Mill do not use chromium based treatment chemicals.
Entire Mill	40 CFR Part 82 (All sections except Subparts B and F)	The Mill does not make, distribute, or process CFC's covered by this regulation.
EU7B17 - #7 Boiler	Rule 801 - Emission of Oxides of Nitrogen From Stationary Sources	Rule 801 does not apply to #7 Boiler because the rule does not apply to fossil fuel fired emission units with maximum rated heat input capacity of 250 million BTU per hour or less. The approximate heat input capacity of the #7 Boiler is 154 million BTU per hour, significantly below the criteria for applicability of the rule.
EG7B17 - #7 Boiler	Standards of Performance for Fossil-Fuel-Fired Steam Generators for Which Construction is Commenced After August 17, 1971	40 CFR Part 60, Subpart D applies to certain fossil-fuel fired steam generators with a heat input rate of more than 250 million BTU per hour. The approximate heat input capacity of #7 Boiler is 154 million BTU per hour, significantly below the criteria for applicability of the standard
EU8B13 – #8 Boiler	40 CFR Part 60, Subparts D and Db	The #8 Boiler was installed in 1968, prior to the applicability date of Subpart D (1971) and Subpart Db (1984).
EU9B03 – #9 Boiler	40 CFR Part 60, Subparts D and Db	The #9 Boiler was installed in 1970, prior to the applicability date of Subpart D (1971) and Subpart Db (1984).
EUCH68 – Coal Handling EU1S68 – #1 Coal Silo EU2S68 – #2 Coal Silo EU3S68 – #3 Coal Silo	40 CFR Part 60, Subpart Y (60.250(c) and 60.250(d))	No modifications have been made to the coal preparation facilities after April 28, 2008 that would make them subject to these rules.
EUM25 – Methanol Storage	40 CFR Part 63, Subpart EEEE	EPA has interpreted that methanol storage associated with ClO_2 systems are subject to 40 CFR Part 63, Subpart S and therefore are not also subject to Subpart EEEE.
EULK29 – Lime Kiln System	~~MDEQ~~EGLE Rule 336.1801	The Lime Kiln does not meet the R336.1801 applicability criteria because it is rated for less than 250 MMBtu/hr heat input.
EULK29 – Lime Kiln System	40 CFR Part 60, Subpart BB	The Lime Kiln was installed in 1972, prior to the Applicability date of September 24, 1976.

Emission Unit/Flexible Group ID	Non-Applicable Requirement	Justification
EURF15 – Chemical Recovery Furnace System	40 CFR Part 60, Subpart Db	No modifications have been made to the Chemical Recovery Furnace after June 19, 1984 that would make it subject to this rule.
EURF15 – Chemical Recovery Furnace System	~~MDEQ~~EGLE Rule 336.1801	The Recovery Furnace does not meet the fossil fuel-fired definition in the rule because it burns less than 50% fossil fuel.
EU1PM32 - #1 Paper Machine System EU3PM07 - #3 Paper Machine System EU4PM64 - #4 Paper Machine System EU2PD40 - #2 Pulp Dryer	40 CFR Part 63, Subpart JJJJ	EPA has interpreted that paper machine/size press operations are considered substrate formation and are not subject to Subpart JJJJ. (per Applicability Determination Memorandum from Mr. Michael Alushin, EPA Office of Compliance, to Mr. Timothy hunt
EU1C36 - #1 Coater System EU3C27 - #3 Coater System EU4C65 - #4 Coater System	40 CFR Part 63, Subpart HHHHH	The coater systems are subject to 40 CFR Part 63, Subpart JJJJ and are exempt from Subpart HHHHH pursuant to 40 CFR 63.7985 (a)(4).
EUCIENG - Emergency CI Engines	40 CFR Part 60, Subpart IIII	EPC is not a manufacturer of stationary CI engines. Owners and operators of CI engines are subject to these requirements if commencement of construction or modification takes place after July 11, 2005. All emergency engines were installed on or before 2001 and are not subject to Subpart IIII.
EUSIENG - Emergency SI Engine	40 CFR Part 60, Subpart JJJJ	EPC is not a manufacturer of stationary SI engines. Owners and operators of SI engines are subject to these requirements if commencement of construction or modification takes place after June 12, 2006. All emergency engines were installed on or before 2001 and are not subject to Subpart JJJJ.
EU7B17 - #7 Boiler EUB13 - #8 Boiler EUSB03 - Wood residue surge bin for #9 Boiler EUCH68 - Coal Handling EUFH68 - Fuel handling for #11 Boiler EU1S68 - #1 Coal Silo for #11 Boiler EU2S68 - #2 Coal Silo for #11 Boiler EU3S68 - #3 Coal Silo for #11 Boiler EU1AS68 - #1 Ash Silo for #11 Boiler EU2AS68 - #2 Ash Silo for #11 Boiler EU1SB14 - #1 Chip Surge Bin EU2SB14 - #2 Chip Surge Bin EUCS14 - Chip Thickness Screening System EURMP61 - Refiner Mechanical Pulping System EUCS61 - Chip Silo for Refiner Mechanical Pulping System EUSB61 - Chip Surge Bin for Refiner Mechanical Pulping System EU1PM32 - #1 Paper Machine System EU1C36 - #1 Coater System EUSS43 - #1 Coater Dry Starch System	40 CFR Part 64 All Sections	The emission units are not subject to Compliance Assurance Monitoring requirements based on the uncontrolled emission rate and/or existing monitoring requirements.

Emission Unit/Flexible Group ID	Non-Applicable Requirement	Justification
EU2PD40 - #2 Pulp Dry System EU3PM07 - #3 Paper Machine System EU1SS08 - #1 Starch Silo EU1M08 - #1 Starch Makedown Tank EU3C27 - #3 Coater System EU2SS08 - #2 Starch Silo EU3SS08 - #3 Starch Silo EU2M08 - #2 Starch Makedown Tank EU4PM64 - #4 Paper Machine System EU4C65 - #4 Coater System EUSS66 - Starch Storage for #4 Coater System EUBB05 - Evaporator System EUME05 - Misc Evaporator System Devices EUBB22 - Digester System EUOT22 - Digester Other Devices EUMT22 - Misc Turpentine Handling Devices EUBB33 - Steam Stripping System NSPS Devices EUMC33 - Misc Condensate Stripping Devices EUSA33 - Soda Ash Storage Tank EUCOND - Condensate Collection and Treatment System EUBB23 - Brownstock NSPS Devices EUS25 - Bleaching Stage Equipment EUB25 - Chlorine Dioxide Generator Plant EUED25 - Extraction Devices EUM25 - Methanol Storage EULKI29 - Lime Storage Bins EUPB - Maintenance Paint Spray Booth EULKSIRICE - Lime Kiln Emergency Drive Motor EUEOCSIRICE - EOC Backup Generator EUE1CIRICE - E1 Emergency Lift Pump EUFW1CIRICE - Water Treatment Building Emergency Fire Water Pump EUFW2CIRICE - Administrative Building Emergency Fire Water Pump EUTTGCIRICE - Turbine Turning Gear Backup Generator		

APPENDICES

Appendix 1. Acronyms and Abbreviations

AQD	Air Quality Division	MM	Million
acfm	Actual cubic feet per minute	MSDS	Material Safety Data Sheet
BACT	Best Available Control Technology	MW	Megawatts
BTU	British Thermal Unit	NA	Not Applicable
°C	Degrees Celsius	NAAQS	National Ambient Air Quality Standards
CAA	Clean Air Act	NESHAP	National Emission Standard for Hazardous Air Pollutants
CAM	Compliance Assurance Monitoring	NMOC	Non-methane Organic Compounds
CEM	Continuous Emission Monitoring	NOx	Oxides of Nitrogen
CFR	Code of Federal Regulations	NSPS	New Source Performance Standards
CO	Carbon Monoxide	NSR	New Source Review
CO_2e	Carbon Dioxide Equivalent	ng	Nanogram
COM	Continuous Opacity Monitoring	PM	Particulate Matter
Department/ department	Mich. Department of Environmental Quality	PM10	Particulate Matter equal to or less than 10 microns in diameter
dscf	Dry standard cubic foot	PM2.5	Particulate Matter equal to or less than 2.5 microns in diameter
dscm	Dry standard cubic meter	pph	Pound per hour
EPA/USEPA	U. S. Environmental Protection Agency	ppm	Parts per million
EU	Emission Unit	ppmv	Parts per million by volume
°F	Degrees Fahrenheit	ppmw	Parts per million by weight
FG	Flexible Group	PS	Performance Specification
GACS	Gallon of Applied Coating Solids	PSD	Prevention of Significant Deterioration
GC	General Condition	psia	Pounds per square inch absolute
GHGs	Greenhouse Gases	psig	Pounds per square inch gauge
gr	Grains	PTE	Permanent Total Enclosure
HAP	Hazardous Air Pollutant	PTI	Permit to Install
Hg	Mercury	RACT	Reasonable Available Control Technology
hr	Hour	ROP	Renewable Operating Permit
HP	Horsepower	SC	Special Condition
H_2S	Hydrogen Sulfide	scf	Standard cubic feet
HVLP	High Volume Low Pressure *	sec	Seconds
ID	Identification	SCR	Selective Catalytic Reduction
IRSL	Initial Risk Screening Level	SO_2	Sulfur Dioxide
ITSL	Initial Threshold Screening Level	SRN	State Registration Number
kW	Kilowatt	TEQ	Toxicity Equivalence Quotient
LAER	Lowest Achievable Emission Rate	TAC	Toxic Air Contaminant
lb	Pound	Temp	Temperature
m	Meter	THC	Total Hydrocarbons
MACT	Maximum Achievable Control Technology	tpy	Tons per year
MAERS	Michigan Air Emissions Reporting System	µg	Microgram
MAP	Malfunction Abatement Plan	µm	Micrometer or Micron
~~MDEQ~~EGLE	Mich. Department of Environmental Quality	VE	Visible Emissions
mg	Milligram	VOC	Volatile Organic Compounds
mm	Millimeter	yr	Year

*For HVLP applicators, the pressure measured at the gun air cap shall not exceed 10 psig.

Appendix 2-1. Schedule of Compliance

The permittee certified in the ROP application that this stationary source is in compliance with all applicable requirements and the permittee shall continue to comply with all terms and conditions of this ROP. A Schedule of Compliance is not required. **(R 336.1213(4)(a), R 336.1119(a)(ii))**

Appendix 3-1. Monitoring Requirements

Specific monitoring requirement procedures, methods or specifications are detailed in Part A or the appropriate Source-Wide, Emission Unit and/or Flexible Group Special Conditions. Therefore, this appendix is not applicable.

Appendix 4-1. Recordkeeping

Specific recordkeeping requirement formats and procedures are detailed in Part A or the appropriate Source-Wide, Emission Unit and/or Flexible Group Special Conditions. Therefore, this appendix is not applicable.

Appendix 5-1. Testing Procedures

Specific testing requirement plans, procedures, and averaging times are detailed in the appropriate Source-Wide, Emission Unit and/or Flexible Group Special Conditions. Therefore, this appendix is not applicable.

Appendix 6-1. Permits to Install

The following table lists any PTIs issued or ROP revision applications received since the effective date of the previously issued ROP No. MI-ROP-No. 200600121d.

Permit to Install Number	ROP Revision Application Number	Description of Equipment or Change	Corresponding Emission Unit(s) or Flexible Group(s)
66-11	Modification to the preheat falling intermediate solids concentrator portion of the evaporator system	Evaporator System and FGEVAPORATORMOD emission units	EUBB05 FGEVAPORATORMOD
127-11D	Modification of the secondary air forced-draft air handling fan	Recovery Furnace and FGRFMOD emission units	EURF15 FGRFMOD
124-12	Upgraded the air system to over-fire air (OFA)	No. 11 Boiler	EU11B68
9-01B	Revised permitted production limit	No. 4 Paper Machine System and FG4PM emission units	EU4PM64 FG4PM
23-13	Add non-hazardous secondary material (NHSM) pellets as fuel to #11 Boiler to potentially reduce the amount of coal used as fuel.	No. 11 Boiler	EU11B68

Appendix 7-1. Emission Calculations

The permittee shall use the following calculations in conjunction with monitoring, testing or recordkeeping data to determine compliance with the applicable requirements referenced in the ROP.

Data Rounding
Any readings, measurements, calculations, and records required by this permit and Department's Rules for Air Pollution Control shall be rounded to the nearest significant digit specified; i.e., for a limit specified as 0.5, 0.54 shall be 0.5, and 0.55 shall be 0.6.

Appendix 8-1. Reporting

A. Annual, Semiannual, and Deviation Certification Reporting

The permittee shall use the ~~MDEQ~~EGLE, AQD, Report Certification form (EQP 5736) and ~~MDEQ~~EGLE, AQD, Deviation Report form (EQP 5737) for the annual, semiannual and deviation certification reporting referenced in the Reporting Section of the Source-Wide, Emission Unit and/or Flexible Group Special Conditions. Alternative formats must meet the provisions of Rule 213(4)(c) and Rule 213(3)(c)(i), respectively, and be approved by the AQD District Supervisor.

B. Other Reporting

Specific reporting requirement formats and procedures are detailed in Part A or the appropriate Source-Wide, Emission Unit and/or Flexible Group Special Conditions. Therefore, Part B of this appendix is not applicable.

Appendix 9-1. Actual to Projected Actual Emissions

Appendix 9-1a. Actual to Projected Actual Emissions

Recordkeeping Provisions for Source Using
Actual to Projected-Actual Applicability Test

All information in this Appendix shall be maintained pursuant to R 336.2818 and 40 CFR 52.21(r)(6)(c)(iii), for five years after the modification, and shall be made available to the Department upon request.

A. Project Description:

The project is to replace the preheat falling intermediate solids concentrator (ISC) portion of the evaporator system was replaced with a Reynolds Enhanced Crystallizer (REX) design (PTI 66-11). The FGEVAPORATORMOD includes the Brownstock System (EUBB23), Chemical Recovery Furnace System (EURF15), Smelt Dissolving Tank System (EUST15), Recausticizing System and Lime Slaker (EUS29), Evaporator System (EUBB05 and EUME05), Digester System (EUOT22, EUBB22 and EUMT22), Steam Stripper System (EUBB33 and EUMC33), Thermal Oxidizer System (EUOC33, and EUSA33), Lime Kiln System (EULK29), Bleach Plant System (EUB25, EUED25 and EUM25), No. 4 Paper Machine (EU4PM64), No. 4 Coater System (EU4C65 and EUSS66), Chip Surge Bin System (EU1SB14 and EU2SB14), and the Chip Thickness Screening System (EUCS14) and fugitive dust emissions associated with roadways, softwood east chip pile, hardwood west chip pile and drop points.

B. Applicability Test Description:

Projected emissions were based on FGEVAPORATORMOD and a five-year projection.

C. Emission Limitations

Emission Unit/ Flexible Group ID	Pollutant	Baseline Actual	Projected Actual	Excluded	Reason for Exclusion
FGEVAPORATORMOD	PM	248.32	257.21	0	No emissions excluded.
FGEVAPORATORMOD	PM10	186.27	194.07	0	No emissions excluded.
FGEVAPORATORMOD	PM2.5	152.85	159.29	0	No emissions excluded.
FGEVAPORATORMOD	NOx	780.33	814.28	0	No emissions excluded.
FGEVAPORATORMOD	SO2	15.49	16.16	0	No emissions excluded.
FGEVAPORATORMOD	CO	1928.19	2,012.33	0	No emissions excluded.
FGEVAPORATORMOD	VOC	137.80	143.90	0	No emissions excluded.
FGEVAPORATORMOD	H2SO4	2.88	3.00	0	No emissions excluded.
FGEVAPORATORMOD	TRS	20.01	21.81	0	No emissions excluded.
FGEVAPORATORMOD	H2S	5.35	5.80	0	No emissions excluded.
FGEVAPORATORMOD	Pb	0.02	0.02	0	No emissions excluded.
FGEVAPORATORMOD	TotalGHG	958,564.44	999,557.69	0	No emissions excluded.
FGEVAPORATORMOD	CO2e	977,231.72	1,019,013.12	0	No emissions excluded.

Appendix 9-1b. Actual to Projected Actual Emissions

Recordkeeping Provisions for Source Using
Actual to Projected-Actual Applicability Test

All information in this Appendix shall be maintained pursuant to 40 CFR 52.21(r)(6)(i) and R 336.2818(3)(c) for five years after emission units identified in Table C resume normal operation.

A. Project Description:

Escanaba Paper Company (EPC) is proposing to install an upgraded over-fire (OFA) system on the No. 11 Boiler (EU11B68) (PTI 124-12). The upgraded OFA system is designed to improve combustion efficiency and decrease air emissions from the boiler. Also, it is expected that the upgrade will allow EPC to maintain higher percentages of biomass based fuels and other fuels that are fired on the boiler's grate while correspondingly reducing the percentage of pulverized coal fired in the boiler.

B. Applicability Test Description:

EPC has demonstrated that the proposed modification to EU11B68 will not cause a significant emissions increase to the source using Actual to Projected Actual Emissions Test described in 40 CFR Part 52.21(a)(2)(iv)(c), and R 336.2802.

C. Emission Limitations

Emission Unit/ Flexible Group ID	Pollutant	Baseline Actual Emissions (tpy)	Projected Actual Emissions (tpy)	Excluded Emissions (tpy)	Reason for Exclusion
EU11B68	PM2.5	207.1	230.9	33.3	Emissions that the boiler could have accommodated during the baseline period and unrelated to this project (installation of OFA).
	PM10	227.3	236.3	36.8	
	SO2	2,795.5	2,891.2	1,003.0	
	NOx	1,785.7	1,787.3	303.7	
	CO	184.8	193.5	73.1	
	H2SO4	214.0	221.4	76.8	
	CO2e	742,878	942,775	132,702	

D. Netting Calculations and Discussion:

Project Emissions = Projected Actual – (Baseline + Excluded)

Example calculation demonstrated with EU11B68 SO2 emissions below:

Project Emissions = 2891.2 – 2795.5 = 95.7 tpy > significance of 40 tpy
Using excluded emissions or capable of accommodating emissions = 95.7 tpy – 1,003.0 = 0

SECTION 2 – OMYA, INC.

A. GENERAL CONDITIONS

Permit Enforceability

- All conditions in this permit are both federally enforceable and state enforceable unless otherwise noted. **(R 336.1213(5))**
- Those conditions that are hereby incorporated in a state-only enforceable Source-Wide PTI pursuant to Rule 201(2)(d) are designated by footnote one. **(R 336.1213(5)(a), R 336.1214a(5))**
- Those conditions that are hereby incorporated in a federally enforceable Source-Wide PTI pursuant to Rule 201(2)(c) are designated by footnote two. **(R 336.1213(5)(b), R 336.1214a(3))**

General Provisions

1. The permittee shall comply with all conditions of this ROP. Any ROP noncompliance constitutes a violation of Act 451, and is grounds for enforcement action, for ROP revocation or revision, or for denial of the renewal of the ROP. All terms and conditions of this ROP that are designated as federally enforceable are enforceable by the Administrator of the United States Environmental Protection Agency (USEPA) and by citizens under the provisions of the federal Clean Air Act (CAA). Any terms and conditions based on applicable requirements which are designated as “state-only” are not enforceable by the USEPA or citizens pursuant to the CAA. **(R 336.1213(1)(a))**
2. 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 ROP. **(R 336.1213(1)(b))**
3. This ROP may be modified, revised, or revoked for cause. The filing of a request by the permittee for a permit modification, revision, or termination, or a notification of planned changes or anticipated noncompliance does not stay any ROP term or condition. This does not supersede or affect the ability of the permittee to make changes, at the permittee’s own risk, pursuant to Rule 215 and Rule 216. **(R 336.1213(1)(c))**
4. The permittee shall allow the department, or an authorized representative of the department, upon presentation of credentials and other documents as may be required by law and upon stating the authority for and purpose of the investigation, to perform any of the following activities **(R 336.1213(1)(d))**:
   a. Enter, at reasonable times, a stationary source or other premises where emissions-related activity is conducted or where records must be kept under the conditions of the ROP.
   b. Have access to and copy, at reasonable times, any records that must be kept under the conditions of the ROP.
   c. Inspect, at reasonable times, any of the following:
      i. Any stationary source.
      ii. Any emission unit.
      iii. Any equipment, including monitoring and air pollution control equipment.
      iv. Any work practices or operations regulated or required under the ROP.
   d. As authorized by Section 5526 of Act 451, sample or monitor at reasonable times substances or parameters for the purpose of assuring compliance with the ROP or applicable requirements.
5. The permittee shall furnish to the department, within a reasonable time, any information the department may request, in writing, to determine whether cause exists for modifying, revising, or revoking the ROP or to determine compliance with this ROP. Upon request, the permittee shall also furnish to the department copies of any records that are required to be kept as a term or condition of this ROP. For information which is claimed by the permittee to be confidential, consistent with the requirements of the 1976 PA 442, MCL §15.231 et seq., and known as the Freedom of Information Act, the person may also be required to furnish the records directly to the USEPA together with a claim of confidentiality. **(R 336.1213(1)(e))**

6. A challenge by any person, the Administrator of the USEPA, or the department to a particular condition or a part of this ROP shall not set aside, delay, stay, or in any way affect the applicability or enforceability of any other condition or part of this ROP. **(R 336.1213(1)(f))**

7. The permittee shall pay fees consistent with the fee schedule and requirements pursuant to Section 5522 of Act 451. **(R 336.1213(1)(g))**

8. This ROP does not convey any property rights or any exclusive privilege. **(R 336.1213(1)(h))**

Equipment & Design

9. Any collected air contaminants shall be removed as necessary to maintain the equipment at the required operating efficiency. The collection and disposal of air contaminants shall be performed in a manner so as to minimize the introduction of contaminants to the outer air. Transport of collected air contaminants in Priority I and II areas requires the use of material handling methods specified in Rule 370(2).[2] **(R 336.1370)**

10. Any air cleaning device shall be installed, maintained, and operated in a satisfactory manner and in accordance with the Michigan Air Pollution Control rules and existing law. **(R 336.1910)**

Emission Limits

11. Unless otherwise specified in this ROP, the permittee shall comply with Rule 301, which states, in part, "Except as provided in subrules 2, 3, and 4 of this rule, a person shall not cause or permit to be discharged into the outer air from a process or process equipment a visible emission of a density greater than the most stringent of the following:" [2] **(R 336.1301(1))**
    a. A 6-minute average of 20% opacity, except for one 6-minute average per hour of not more than 27% opacity.
    b. A limit specified by an applicable federal new source performance standard.

    The grading of visible emissions shall be determined in accordance with Rule 303.

12. The permittee shall not cause or permit the emission of an air contaminant or water vapor in quantities that cause, alone or in reaction with other air contaminants, either of the following:
    a. Injurious effects to human health or safety, animal life, plant life of significant economic value, or property.[1] **(R 336.1901(a))**
    b. Unreasonable interference with the comfortable enjoyment of life and property.[1] **(R 336.1901(b))**

Testing/Sampling

13. The department may require the owner or operator of any source of an air contaminant to conduct acceptable performance tests, at the owner's or operator's expense, in accordance with Rule 1001 and Rule 1003, under any of the conditions listed in Rule 1001(1).[2] **(R 336.2001)**

14. Any required performance testing shall be conducted in accordance with Rule 1001(2), Rule 1001(3) and Rule 1003. **(R 336.2001(2), R 336.2001(3), R 336.2003(1))**

15. Any required test results shall be submitted to the Air Quality Division (AQD) in the format prescribed by the applicable reference test method within 60 days following the last date of the test. **(R 336.2001(5))**

Monitoring/Recordkeeping

16. Records of any periodic emission or parametric monitoring required in this ROP shall include the following information specified in Rule 213(3)(b)(i), where appropriate. **(R 336.1213(3)(b))**
    a. The date, location, time, and method of sampling or measurements.
    b. The dates the analyses of the samples were performed.
    c. The company or entity that performed the analyses of the samples.
    d. The analytical techniques or methods used.
    e. The results of the analyses.
    f. The related process operating conditions or parameters that existed at the time of sampling or measurement.

17. All required monitoring data, support information and all reports, including reports of all instances of deviation from permit requirements, shall be kept and furnished to the department upon request for a period of not less than 5 years from the date of the monitoring sample, measurement, report or application. Support information includes all calibration and maintenance records and all original strip-chart recordings, or other original data records, for continuous monitoring instrumentation and copies of all reports required by the ROP. **(R 336.1213(1)(e), R 336.1213(3)(b)(ii))**

Certification & Reporting

18. Except for the alternate certification schedule provided in Rule 213(3)(c)(iii)(B), any document required to be submitted to the department as a term or condition of this ROP shall contain an original certification by a Responsible Official which states that, based on information and belief formed after reasonable inquiry, the statements and information in the document are true, accurate, and complete. **(R 336.1213(3)(c))**

19. A Responsible Official shall certify to the appropriate AQD District Office and to the USEPA that the stationary source is and has been in compliance with all terms and conditions contained in the ROP except for deviations that have been or are being reported to the appropriate AQD District Office pursuant to Rule 213(3)(c). This certification shall include all the information specified in Rule 213(4)(c)(i) through (v) and shall state that, based on information and belief formed after reasonable inquiry, the statements and information in the certification are true, accurate, and complete. The USEPA address is: USEPA, Air Compliance Data - Michigan, Air and Radiation Division, 77 West Jackson Boulevard, Chicago, Illinois 60604. **(R 336.1213(4)(c))**

20. The certification of compliance shall be submitted annually for the term of this ROP as detailed in the special conditions, or more frequently if specified in an applicable requirement or in this ROP. **(R 336.1213(4)(c))**

21. The permittee shall promptly report any deviations from ROP requirements and certify the reports. The prompt reporting of deviations from ROP requirements is defined in Rule 213(3)(c)(ii) as follows, unless otherwise described in this ROP. **(R 336.1213(3)(c))**
    a. For deviations that exceed the emissions allowed under the ROP, prompt reporting means reporting consistent with the requirements of Rule 912 as detailed in Condition 25. All reports submitted pursuant to this paragraph shall be promptly certified as specified in Rule 213(3)(c)(iii).
    b. For deviations which exceed the emissions allowed under the ROP and which are not reported pursuant to Rule 912 due to the duration of the deviation, prompt reporting means the reporting of all deviations in the semiannual reports required by Rule 213(3)(c)(i). The report shall describe reasons for each deviation and the actions taken to minimize or correct each deviation.
    c. For deviations that do not exceed the emissions allowed under the ROP, prompt reporting means the reporting of all deviations in the semiannual reports required by Rule 213(3)(c)(i). The report shall describe the reasons for each deviation and the actions taken to minimize or correct each deviation.

22. For reports required pursuant to Rule 213(3)(c)(ii), prompt certification of the reports is described in Rule 213(3)(c)(iii) as either of the following **(R 336.1213(3)(c))**:
    a. Submitting a certification by a Responsible Official with each report which states that, based on information and belief formed after reasonable inquiry, the statements and information in the report are true, accurate, and complete.
    b. Submitting, within 30 days following the end of a calendar month during which one or more prompt reports of deviations from the emissions allowed under the ROP were submitted to the department pursuant to Rule 213(3)(c)(ii), a certification by a Responsible Official which states that, "based on information and belief formed after reasonable inquiry, the statements and information contained in each of the reports submitted during the previous month were true, accurate, and complete". The certification shall include a listing of the reports that are being certified. Any report submitted pursuant to Rule 213(3)(c)(ii) that will be certified on a monthly basis pursuant to this paragraph shall include a statement that certification of the report will be provided within 30 days following the end of the calendar month.

23. Semiannually for the term of the ROP as detailed in the special conditions, or more frequently if specified, the permittee shall submit certified reports of any required monitoring to the appropriate AQD District Office. All instances of deviations from ROP requirements during the reporting period shall be clearly identified in the reports. **(R 336.1213(3)(c)(i))**

24. On an annual basis, the permittee shall report the actual emissions, or the information necessary to determine the actual emissions, of each regulated air pollutant as defined in Rule 212(6) for each emission unit utilizing the emissions inventory forms provided by the department. **(R 336.1212(6))**

25. The permittee shall provide notice of an abnormal condition, start-up, shutdown, or malfunction that results in emissions of a hazardous or toxic air pollutant which continue for more than one hour in excess of any applicable standard or limitation, or emissions of any air contaminant continuing for more than two hours in excess of an applicable standard or limitation, as required in Rule 912, to the appropriate AQD District Office. The notice shall be provided not later than two business days after the start-up, shutdown, or discovery of the abnormal conditions or malfunction. Notice shall be by any reasonable means, including electronic, telephonic, or oral communication. Written reports, if required under Rule 912, must be submitted to the appropriate AQD District Supervisor within 10 days after the start-up or shutdown occurred, within 10 days after the abnormal conditions or malfunction has been corrected, or within 30 days of discovery of the abnormal conditions or malfunction, whichever is first. The written reports shall include all of the information required in Rule 912(5) and shall be certified by a Responsible Official in a manner consistent with the CAA.[2] **(R 336.1912)**

Permit Shield

26. Compliance with the conditions of the ROP shall be considered compliance with any applicable requirements as of the date of ROP issuance, if either of the following provisions is satisfied. **(R 336.1213(6)(a)(i), R 336.1213(6)(a)(ii))**
    a. The applicable requirements are included and are specifically identified in the ROP.
    b. The permit includes a determination or concise summary of the determination by the department that other specifically identified requirements are not applicable to the stationary source.

    Any requirements identified in Part E of this ROP have been identified as non-applicable to this ROP and are included in the permit shield.

27. Nothing in this ROP shall alter or affect any of the following:
    a. The provisions of Section 303 of the CAA, emergency orders, including the authority of the USEPA under Section 303 of the CAA. **(R 336.1213(6)(b)(i))**
    b. The liability of the owner or operator of this source for any violation of applicable requirements prior to or at the time of this ROP issuance. **(R 336.1213(6)(b)(ii))**
    c. The applicable requirements of the acid rain program, consistent with Section 408(a) of the CAA. **(R 336.1213(6)(b)(iii))**

d. The ability of the USEPA to obtain information from a source pursuant to Section 114 of the CAA. **(R 336.1213(6)(b)(iv))**

28. The permit shield shall not apply to provisions incorporated into this ROP through procedures for any of the following:
    a. Operational flexibility changes made pursuant to Rule 215. **(R 336.1215(5))**
    b. Administrative Amendments made pursuant to Rule 216(1)(a)(i)-(iv). **(R 336.1216(1)(b)(iii))**
    c. Administrative Amendments made pursuant to Rule 216(1)(a)(v) until the amendment has been approved by the department. **(R 336.1216(1)(c)(iii))**
    d. Minor Permit Modifications made pursuant to Rule 216(2). **(R 336.1216(2)(f))**
    e. State-Only Modifications made pursuant to Rule 216(4) until the changes have been approved by the department. **(R 336.1216(4)(e))**

29. Expiration of this ROP results in the loss of the permit shield. If a timely and administratively complete application for renewal is submitted not more than 18 months, but not less than 6 months, before the expiration date of the ROP, but the department fails to take final action before the end of the ROP term, the existing ROP does not expire until the renewal is issued or denied, and the permit shield shall extend beyond the original ROP term until the department takes final action. **(R 336.1217(1)(c), R 336.1217(1)(a))**

Revisions

30. For changes to any process or process equipment covered by this ROP that do not require a revision of the ROP pursuant to Rule 216, the permittee must comply with Rule 215. **(R 336.1215, R 336.1216)**

31. A change in ownership or operational control of a stationary source covered by this ROP shall be made pursuant to Rule 216(1). **(R 336.1219(2))**

32. For revisions to this ROP, an administratively complete application shall be considered timely if it is received by the department in accordance with the time frames specified in Rule 216. **(R 336.1210(10))**

33. Pursuant to Rule 216(1)(b)(iii), Rule 216(2)(d) and Rule 216(4)(d), after a change has been made, and until the department takes final action, the permittee shall comply with both the applicable requirements governing the change and the ROP terms and conditions proposed in the application for the modification. During this time period, the permittee may choose to not comply with the existing ROP terms and conditions that the application seeks to change. However, if the permittee fails to comply with the ROP terms and conditions proposed in the application during this time period, the terms and conditions in the ROP are enforceable. **(R 336.1216(1)(c)(iii), R 336.1216(2)(d), R 336.1216(4)(d))**

Reopenings

34. A ROP shall be reopened by the department prior to the expiration date and revised by the department under any of the following circumstances:
    a. If additional requirements become applicable to this stationary source with three or more years remaining in the term of the ROP, but not if the effective date of the new applicable requirement is later than the ROP expiration date. **(R 336.1217(2)(a)(i))**
    b. If additional requirements pursuant to Title IV of the CAA become applicable to this stationary source. **(R 336.1217(2)(a)(ii))**
    c. If the department determines that the ROP contains a material mistake, information required by any applicable requirement was omitted, or inaccurate statements were made in establishing emission limits or the terms or conditions of the ROP. **(R 336.1217(2)(a)(iii))**
    d. If the department determines that the ROP must be revised to ensure compliance with the applicable requirements. **(R 336.1217(2)(a)(iv))**

Renewals

35. For renewal of this ROP, an administratively complete application shall be considered timely if it is received by the department not more than 18 months, but not less than 6 months, before the expiration date of the ROP. **(R 336.1210(8))**

Stratospheric Ozone Protection

36. If the permittee is subject to Title 40 of the Code of Federal Regulations (CFR), Part 82 and services, maintains, or repairs appliances except for motor vehicle air conditioners (MVAC), or disposes of appliances containing refrigerant, including MVAC and small appliances, or if the permittee is a refrigerant reclaimer, appliance owner or a manufacturer of appliances or recycling and recovery equipment, the permittee shall comply with all applicable standards for recycling and emissions reduction pursuant to 40 CFR Part 82, Subpart F.

37. If the permittee is subject to 40 CFR Part 82, and performs a service on motor (fleet) vehicles when this service involves refrigerant in the MVAC, the permittee is subject to all the applicable requirements as specified in 40 CFR Part 82, Subpart B, Servicing of Motor Vehicle Air Conditioners. The term "motor vehicle" as used in Subpart B does not include a vehicle in which final assembly of the vehicle has not been completed by the original equipment manufacturer. The term MVAC as used in Subpart B does not include the air-tight sealed refrigeration system used for refrigerated cargo or an air conditioning system on passenger buses using Hydrochlorofluorocarbon-22 refrigerant.

Risk Management Plan

38. If subject to Section 112(r) of the CAA and 40 CFR Part 68, the permittee shall register and submit to the USEPA the required data related to the risk management plan for reducing the probability of accidental releases of any regulated substances listed pursuant to Section 112(r)(3) of the CAA as amended in 40 CFR 68.130. The list of substances, threshold quantities, and accident prevention regulations promulgated under 40 CFR Part 68, do not limit in any way the general duty provisions under Section 112(r)(1).

39. If subject to Section 112(r) of the CAA and 40 CFR Part 68, the permittee shall comply with the requirements of 40 CFR Part 68, no later than the latest of the following dates as provided in 40 CFR 68.10(a):
    a. June 21, 1999,
    b. Three years after the date on which a regulated substance is first listed under 40 CFR 68.130, or
    c. The date on which a regulated substance is first present above a threshold quantity in a process.

40. If subject to Section 112(r) of the CAA and 40 CFR Part 68, the permittee shall submit any additional relevant information requested by any regulatory agency necessary to ensure compliance with the requirements of 40 CFR Part 68.

41. If subject to Section 112(r) of the CAA and 40 CFR Part 68, the permittee shall annually certify compliance with all applicable requirements of Section 112(r) as detailed in Rule 213(4)(c)). **(40 CFR Part 68)**

Emission Trading

42. Emission averaging and emission reduction credit trading are allowed pursuant to any applicable interstate or regional emission trading program that has been approved by the Administrator of the USEPA as a part of Michigan's State Implementation Plan. Such activities must comply with Rule 215 and Rule 216. **(R 336.1213(12))**

Permit To Install (PTI)

43. The process or process equipment included in this permit shall not be reconstructed, relocated, or modified unless a PTI authorizing such action is issued by the department, except to the extent such action is exempt from the PTI requirements by any applicable rule.[2] **(R 336.1201(1))**

44. The department may, after notice and opportunity for a hearing, revoke PTI terms or conditions if evidence indicates the process or process equipment is not performing in accordance with the terms and conditions of the PTI or is violating the department's rules or the CAA.[2] **(R 336.1201(8), Section 5510 of Act 451)**

45. The terms and conditions of a PTI shall apply to any person or legal entity that now or hereafter owns or operates the process or process equipment at the location authorized by the PTI. If a new owner or operator submits a written request to the department pursuant to Rule 219 and the department approves the request, this PTI will be amended to reflect the change of ownership or operational control. The request must include all of the information required by Subrules (1)(a), (b) and (c) of Rule 219. The written request shall be sent to the appropriate AQD District Supervisor, ~~MDEQ~~EGLE.[2] **(R 336.1219)**

46. If the installation, reconstruction, relocation, or modification of the equipment for which PTI terms and conditions have been approved has not commenced within 18 months of the original PTI issuance date, or has been interrupted for 18 months, the applicable terms and conditions from that PTI, as incorporated into the ROP, shall become void unless otherwise authorized by the department. Furthermore, the person to whom that PTI was issued, or the designated authorized agent, shall notify the department via the Supervisor, Permit Section, ~~MDEQ~~EGLE, AQD, P. O. Box 30260, Lansing, Michigan 48909, if it is decided not to pursue the installation, reconstruction, relocation, or modification of the equipment allowed by the terms and conditions from that PTI.[2] **(R 336.1201(4))**

Footnotes:
[1]This condition is state-only enforceable and was established pursuant to Rule 201(1)(b).
[2]This condition is federally enforceable and was established pursuant to Rule 201(1)(a).

B. SOURCE-WIDE CONDITIONS

Part B outlines the Source-Wide Terms and Conditions that apply to this stationary source. The permittee is subject to these special conditions for the stationary source in addition to the general conditions in Part A and any other terms and conditions contained in this ROP.

The permittee shall comply with all specific details in the special conditions and the underlying applicable requirements cited. If a specific condition type does not apply to this source, NA (not applicable) has been used in the table. If there are no Source-Wide Conditions, this section will be left blank.

SOURCE-WIDE CONDITIONS

POLLUTION CONTROL EQUIPMENT

NA

I. EMISSION LIMIT(S)

Pollutant	Limit	Time Period/ Operating Scenario	Equipment	Monitoring/ Testing Method	Underlying Applicable Requirements
NA	NA	NA	NA	NA	NA

II. MATERIAL LIMIT(S)

Material	Limit	Time Period/ Operating Scenario	Equipment	Monitoring/ Testing Method	Underlying Applicable Requirements
NA	NA	NA	NA	NA	NA

III. PROCESS/OPERATIONAL RESTRICTION(S)

NA

IV. DESIGN/EQUIPMENT PARAMETER(S)

NA

V. TESTING/SAMPLING

Records shall be maintained on file for a period of five years. **(R 336.1213(3)(b)(ii))**

NA

See Appendix 5

VI. MONITORING/RECORDKEEPING

Records shall be maintained on file for a period of five years. **(R 336.1213(3)(b)(ii))**

NA

See Appendix 7

VII. REPORTING

1. Prompt reporting of deviations pursuant to General Conditions 21 and 22 of Part A. **(R 336.1213(3)(c)(ii))**

2. Semiannual reporting of monitoring and deviations pursuant to General Condition 23 of Part A. The report shall be postmarked or received by the appropriate AQD District Office by March 15 for reporting period July 1 to December 31 and September 15 for reporting period January 1 to June 30. **(R 336.1213(3)(c)(i))**

3. Annual certification of compliance pursuant to General Conditions 19 and 20 of Part A. The report shall be postmarked or received by the appropriate AQD District Office by March 15 for the previous calendar year. **(R 336.1213(4)(c))**

4. Annual certification of compliance pursuant to General Conditions 19 and 20 of Part A. The report shall be postmarked or received by the appropriate AQD District Office by March 15 for the previous calendar year. **(R 336.1213(4)(c))**

See Appendix 8

VIII. STACK/VENT RESTRICTION(S)

The exhaust gases from the stacks listed in the table below shall be discharged unobstructed vertically upwards to the ambient air unless otherwise noted:

Stack & Vent ID	Maximum Exhaust Dimensions (inches)	Minimum Height Above Ground (feet)	Underlying Applicable Requirements
NA	NA	NA	NA

IX. OTHER REQUIREMENT(S)

1. The permittee shall carry out a **Fugitive Dust Control Program** to control fugitive dust emissions from the plant roadways, material storage piles, and other operations throughout the plant, including keeping of records of fugitive dust control activities and dates carried out. [2] **(R 336.1201, R 336.1371, R 336.1372, R 336.1901, R 336.1213(3))**

Footnotes:
[1]This condition is state-only enforceable and was established pursuant to Rule 201(1)(b).
[2]This condition is federally enforceable and was established pursuant to Rule 201(1)(a).

C. EMISSION UNIT CONDITIONS

Part C outlines terms and conditions that are specific to individual emission units listed in the Emission Unit Summary Table. The permittee is subject to the special conditions for each emission unit in addition to the General Conditions in Part A and any other terms and conditions contained in this ROP.

The permittee shall comply with all specific details in the special conditions and the underlying applicable requirements cited. If a specific condition type does not apply, NA (not applicable) has been used in the table. If there are no conditions specific to individual emission units, this section will be left blank.

EMISSION UNIT SUMMARY TABLE

The descriptions provided below are for informational purposes and do not constitute enforceable conditions.

Emission Unit ID	Emission Unit Description (Including Process Equipment & Control Device(s))	Installation Date/ Modification Date	Flexible Group ID
EUCARBONATORS	Three carbonators, 2 of which may be used at a time for PCC production. Carbon dioxide will be provided to the carbonators from the Lime Kiln or from liquid CO2. Gas from the lime kiln will be pre-treated with a water spray scrubber/gas cooler which removes more particulate than added by the carbonation process.	12/06/2013	FGPCCPLANT
EULIME	Lime handling and limestone storage silo.	12/06/2013	FGPCCPLANT
EUCOOLTWR	One Cooling tower used to remove heat produced during PCC production.	12/06/2013	FGPCCPLANT
EUROAD	Fugitive emissions increase at the facility roads due to PCC Plant.	12/06/2013	FGPCCPLANT
Changes to the equipment described in this table are subject to the requirements of R 336.1201, except as allowed by R 336.1278 to R 336.1290.			

EUCARBONATORS
EMISSION UNIT CONDITIONS

DESCRIPTION

Three carbonators, 2 of which may be used at a time for PCC production. Carbon dioxide will be routed to the carbonators from the Lime Kiln or from liquid CO2. Non-particulate emissions are from the Lime Kiln gas and are not a product of PCC production.

Flexible Group ID: FGPCCPLANT

POLLUTION CONTROL EQUIPMENT

Gas from the lime kiln will be pre-treated with a packed water spray scrubber/gas cooler which removes more particulate than added by the carbonation process. The exhaust from EUCARBONATORS is treated with a de-mister before reaching the PCC stack.

I. EMISSION LIMIT(S)

Pollutant	Limit	Time Period/ Operating Scenario	Equipment	Monitoring/ Testing Method	Underlying Applicable Requirements
1. PM	0.011 gr/dscf[2]	Test Protocol*	EUCARBONATORS	SC V.1 GC 13	**R 336.1205(1) R 336.1331**
2. PM_{10}	1.13 pph[2]	Test Protocol*	EUCARBONATORS	SC V.1 GC 13	**R 336.1205(1) R 336. 2803 R 336. 2804**
3. $PM_{2.5}$	1.13 pph[2]	Test Protocol*	EUCARBONATORS	SC V.1 GC 13	**R 336.1205(1) R 336. 2803 R 336. 2804**
* Test Protocol shall specify averaging time.					

II. MATERIAL LIMIT(S)

Material	Limit	Time Period/ Operating Scenario	Equipment	Monitoring/ Testing Method	Underlying Applicable Requirements
NA	NA	NA	NA	NA	NA

III. PROCESS/OPERATIONAL RESTRICTION(S)

NA

IV. DESIGN/EQUIPMENT PARAMETER(S)

1. The permittee shall not operate EUCARBONATORS using combustion gas from the Lime Kiln unless the wet scrubber treating the Lime Kiln exhaust is installed, maintained, and operated in a satisfactory manner. [2] **(R 336.1205, R 336.1331, R 336.1910)**

2. The permittee shall not operate EUCARBONATORS unless the demisters located downstream from the carbonators are installed, maintained, and operated in a satisfactory manner. [2] **(R 336.1205, R 336.1331, R 336.1910)**

V. TESTING/SAMPLING

Records shall be maintained on file for a period of five years. **(R 336.1213(3)(b)(ii))**

1. The permittee shall perform weekly non-certified visible opacity, (non-water vapor), observations as an indicator of proper operations of the process wet scrubber and demisters. [2] **(R 336.1205, R 336.1331, R 336.1910)**

See Appendix 5

VI. MONITORING/RECORDKEEPING

Records shall be maintained on file for a period of five years. **(R 336.1213(3)(b)(ii))**

1. The permittee shall keep, in a satisfactory manner, records of all visible opacity emission readings for EUCARBONATORS. At a minimum, records shall include the date, time, name of observer/reader, and status of visible emissions. The permittee shall keep all records on file at the facility and make them available to the Department upon request. [2] **(R 336.1205, R 336.1301, R 336.1331)**

See Appendix 7

VII. REPORTING

1. Prompt reporting of deviations pursuant to General Conditions 21 and 22 of Part A. **(R 336.1213(3)(c)(ii))**

2. Semiannual reporting of monitoring and deviations pursuant to General Condition 23 of Part A. The report shall be postmarked or received by the appropriate AQD District Office by March 15 for reporting period July 1 to December 31 and September 15 for reporting period January 1 to June 30. **(R 336.1213(3)(c)(i))**

3. Annual certification of compliance pursuant to General Conditions 19 and 20 of Part A. The report shall be postmarked or received by the appropriate AQD District Office by March 15 for the previous calendar year. **(R 336.1213(4)(c))**

See Appendix 8

VIII. STACK/VENT RESTRICTION(S)

The exhaust gases from the stacks listed in the table below shall be discharged unobstructed vertically upwards to the ambient air unless otherwise noted:

Stack & Vent ID	Maximum Exhaust Dimensions (inches)	Minimum Height Above Ground (feet)	Underlying Applicable Requirements
1. SV-PCC	28[2]	195.01[2]	**R 336.2803** **R 336.2804**

IX. OTHER REQUIREMENT(S)

NA

Footnotes:
[1]This condition is state-only enforceable and was established pursuant to Rule 201(1)(b).
[2]This condition is federally enforceable and was established pursuant to Rule 201(1)(a).

EULIME
EMISSION UNIT CONDITIONS

DESCRIPTION

Lime silos used in the precipitated calcium carbonate process to store lime prior to use.

Flexible Group ID: FGPCCPLANT

POLLUTION CONTROL EQUIPMENT

Fabric Filter Baghouse

I. EMISSION LIMIT(S)

Pollutant	Limit	Time Period/ Operating Scenario	Equipment	Monitoring/ Testing Method	Underlying Applicable Requirements
1. PM	0.01 gr/dscf [2]	Test Protocol*	EULIME	SC V.1 SC VI.1	**R 336.1205(1) R 336.1331**
2. PM10	0.15 lb/hr[2]	Test Protocol*	EULIME	SC V.1	**R 336.1205(1) R 336. 2803 R 336. 2804**
3. PM2.5	0.15 lb/hr [2]	Test Protocol*	EULIME	SC V.1	**R 336.1205(1) R 336. 2803 R 336. 2804**

* Test Protocol shall specify averaging time

II. MATERIAL LIMIT(S)

Material	Limit	Time Period/ Operating Scenario	Equipment	Monitoring/ Testing Method	Underlying Applicable Requirements
NA	NA	NA	NA	NA	NA

III. PROCESS/OPERATIONAL RESTRICTION(S)

1. The permittee shall not operate EULIME unless the emissions are routed to a baghouse which is installed, maintained, and operated in a satisfactory manner. [2] **(R 336.1205, R 336.1331, R 336.1910, R 336.2803, R 336.2804, 40 CFR 52.21(c) and (d))**

2. The permittee shall not route silo emissions to the baghouse for more than 12 hours per day. [2] **(R 336.1205, R 336.1901, R 336.2803, R 336.2804, 40 CFR 52.21(c) & (d))**

IV. DESIGN/EQUIPMENT PARAMETER(S)

NA

V. TESTING/SAMPLING

Records shall be maintained on file for a period of five years. **(R 336.1213(3)(b)(ii))**

1. The permittee shall perform weekly non-certified visible opacity observations as an indicator of proper operations of the baghouse. [2] **(R 336.1205, R 336.1331, R 336.1910)**

See Appendix 5

VI. MONITORING/RECORDKEEPING

Records shall be maintained on file for a period of five years. **(R 336.1213(3)(b)(ii))**

1. The permittee shall maintain a record of the baghouse filter vendor's certification of the grain loading factor for the bags being used in the baghouse for EULIME. [2] **(R 336.1205)**

2. The permittee shall keep, in a satisfactory manner, a record of the hours that EULIME emissions are routed to the baghouse. The permittee shall keep all records on file at the facility and make them available to the Department upon request. [2] **(R 336.1205, 40 CFR 52.21(c) & (d))**

3. The permittee shall keep, in a satisfactory manner, records of all visible emission readings for EULIME. At a minimum, records shall include the date, time, name of observer/reader, and status of visible emissions. The permittee shall keep all records on file at the facility and make them available to the Department upon request. [2] **(R 336.1205, R 336.1301, R 336.1331)**

See Appendix 7

VII. REPORTING

1. Prompt reporting of deviations pursuant to General Conditions 21 and 22 of Part A. **(R 336.1213(3)(c)(ii))**

2. Semiannual reporting of monitoring and deviations pursuant to General Condition 23 of Part A. The report shall be postmarked or received by the appropriate AQD District Office by March 15 for reporting period July 1 to December 31 and September 15 for reporting period January 1 to June 30. **(R 336.1213(3)(c)(i))**

3. Annual certification of compliance pursuant to General Conditions 19 and 20 of Part A. The report shall be postmarked or received by the appropriate AQD District Office by March 15 for the previous calendar year. **(R 336.1213(4)(c))**

See Appendix 8

VIII. STACK/VENT RESTRICTION(S)

The exhaust gases from the stacks listed in the table below shall be discharged unobstructed vertically upwards to the ambient air unless otherwise noted:

Stack & Vent ID	Maximum Exhaust Dimensions (inches)	Minimum Height Above Ground (feet)	Underlying Applicable Requirements
1. SV-SILO	10[2]	83.99[2]	**R 336.2803** **R 336.2804**

IX. OTHER REQUIREMENT(S)

NA

Footnotes:
[1] This condition is state only enforceable and was established pursuant to Rule 201(1)(b).
[2] This condition is federally enforceable and was established pursuant to Rule 201(1)(a).

EUCOOLTWR
EMISSION UNIT CONDITIONS

DESCRIPTION

Mechanical induced draft cooling tower used to reduce the temperature of the Lime Kiln exhaust gases and carbonators.

Flexible Group ID: FGPCCPLANT

POLLUTION CONTROL EQUIPMENT

NA

I. EMISSION LIMIT(S)

Pollutant	Limit	Time Period/ Operating Scenario	Equipment	Monitoring/ Testing Method	Underlying Applicable Requirements
1. PM	0.25 lb/hr[2]	Test Protocol*	EUCOOLTWR	SC VI.2	**R 336.1205(1) R 336.1331**
2. PM10	0.25 lb/hr [2]	Test Protocol*	EUCOOLTWR	SC VI.2	**R 336.1205(1) R 336. 2803 R 336. 2804**
3. PM2.5	0.25 lb/hr [2]	Test Protocol*	EUCOOLTWR	SC VI.2	**R 336.1205(1) R 336. 2803 R 336. 2804**
* Test Protocol shall specify averaging time.					

II. MATERIAL LIMIT(S)

Material	Limit	Time Period/ Operating Scenario	Equipment	Monitoring/ Testing Method	Underlying Applicable Requirements
NA	NA	NA	NA	NA	NA

III. PROCESS/OPERATIONAL RESTRICTION(S)

1. The permittee shall maintain the total dissolved solids (TDS) concentration of the circulating water to below 1,656 ppm. [2] **(R 336.1205, R 336.1331, R 336.1910, R 336.2803, R 336.2804, 40 CFR 52.21(c)(d))**

IV. DESIGN/EQUIPMENT PARAMETER(S)

1. The permittee shall equip and maintain the cooling tower in EUCOOLTWR-2 with drift eliminators with a vendor-certified maximum drift rate of 0.01 percent or less. [2] **(R 336.1205, R 336.1331, R 336.1910, R 336.2803, R 336.2804, 40 CFR 52.21(c)(d))**

V. TESTING/SAMPLING

Records shall be maintained on file for a period of five years. **(R 336.1213(3)(b)(ii))**

NA

See Appendix 5

VI. MONITORING/RECORDKEEPING

Records shall be maintained on file for a period of five years. **(R 336.1213(3)(b)(ii))**

1. The permittee shall maintain a record of the vendor's cooling tower design basis for the life of the cooling tower, EUCOOLTWR. **(R 336.1205)**

2. The permittee shall monitor the following for the cooling tower in EUCOOLTWR, using a method acceptable to the AQD District Supervisor.
   a. On a weekly basis, parameters needed to determine the total dissolved solids concentration of the circulating water.
   b. On a monthly basis, parameters needed to determine the cooling loop flowrate.
   (R 336.1205, R 336.1331, R 336.1910, R 336.2803, R 336.2804, 40 CFR 52.21(c) and (d))

3. The permittee shall calculate the PM and PM-10 emission rates from the cooling tower in EUCOOLTWR monthly, for the preceding 12-month rolling time period, using a method acceptable to the AQD District Supervisor. **(R 336.1205, R 336.1331, R 336.2803, R 336.2804, 40 CFR 52.21(c) and (d))**

See Appendix 7

VII. REPORTING

1. Prompt reporting of deviations pursuant to General Conditions 21 and 22 of Part A. **(R 336.1213(3)(c)(ii))**

2. Semiannual reporting of monitoring and deviations pursuant to General Condition 23 of Part A. The report shall be postmarked or received by the appropriate AQD District Office by March 15 for reporting period July 1 to December 31 and September 15 for reporting period January 1 to June 30. **(R 336.1213(3)(c)(i))**

3. Annual certification of compliance pursuant to General Conditions 19 and 20 of Part A. The report shall be postmarked or received by the appropriate AQD District Office by March 15 for the previous calendar year. **(R 336.1213(4)(c))**

See Appendix 8

VIII. STACK/VENT RESTRICTION(S)

The exhaust gases from the stacks listed in the table below shall be discharged unobstructed vertically upwards to the ambient air unless otherwise noted:

Stack & Vent ID	Maximum Exhaust Dimensions (inches)	Minimum Height Above Ground (feet)	Underlying Applicable Requirements
1. SVCOOLTWR	144[2]	31.31[2]	**R 336.2803** **R 336.2804**

IX. OTHER REQUIREMENT(S)

NA

Footnotes:

[1] This condition is state only enforceable and was established pursuant to Rule 201(1)(b).
[2] This condition is federally enforceable and was established pursuant to Rule 201(1)(a).

EUROAD
EMISSION UNIT CONDITIONS

DESCRIPTION

Fugitive emissions increase at the facility roads due to PCC Plant.

Flexible Group ID: FGPCCPLANT

POLLUTION CONTROL EQUIPMENT

NA

I. EMISSION LIMIT(S)

Pollutant	Limit	Time Period/ Operating Scenario	Equipment	Monitoring/ Testing Method	Underlying Applicable Requirements
1. PM	0.13 lb/hr^2	Test Protocol *	EUROAD	General Condition 13	**R 336.1205(1) R 336.1331**
2. PM10	0.03 lb/hr^2	Test Protocol*	EUROAD	General Condition 13	**R 336.1205(1) R 336. 2803 R 336. 2804**
3. PM2.5	0.01 lb/hr^2	Test Protocol*	EUROAD	General Condition 13	**R 336.1205(1) R 336. 2803 R 336. 2804**
* Test Protocol shall specify averaging time.					

II. MATERIAL LIMIT(S)

Material	Limit	Time Period/ Operating Scenario	Equipment	Monitoring/ Testing Method	Underlying Applicable Requirements
NA	NA	NA	NA	NA	NA

III. PROCESS/OPERATIONAL RESTRICTION(S)

NA

IV. DESIGN/EQUIPMENT PARAMETER(S)

NA

V. TESTING/SAMPLING

Records shall be maintained on file for a period of five years. **(R 336.1213(3)(b)(ii))**

NA

See Appendix 5

VI. MONITORING/RECORDKEEPING

Records shall be maintained on file for a period of five years. **(R 336.1213(3)(b)(ii))**

NA

See Appendix 7

VII. REPORTING

1. Prompt reporting of deviations pursuant to General Conditions 21 and 22 of Part A. **(R 336.1213(3)(c)(ii))**

2. Semiannual reporting of monitoring and deviations pursuant to General Condition 23 of Part A. The report shall be postmarked or received by the appropriate AQD District Office by March 15 for reporting period July 1 to December 31 and September 15 for reporting period January 1 to June 30. **(R 336.1213(3)(c)(i))**

3. Annual certification of compliance pursuant to General Conditions 19 and 20 of Part A. The report shall be postmarked or received by the appropriate AQD District Office by March 15 for the previous calendar year. **(R 336.1213(4)(c))**

See Appendix 8

VIII. STACK/VENT RESTRICTION(S)

The exhaust gases from the stacks listed in the table below shall be discharged unobstructed vertically upwards to the ambient air unless otherwise noted:

Stack & Vent ID	Maximum Exhaust Dimensions (inches)	Minimum Height Above Ground (feet)	Underlying Applicable Requirements
NA	NA	NA	NA

IX. OTHER REQUIREMENT(S)

NA

Footnotes:
[1] This condition is state only enforceable and was established pursuant to Rule 201(1)(b).
[2] This condition is federally enforceable and was established pursuant to Rule 201(1)(a).

D. FLEXIBLE GROUP CONDITIONS

Part D outlines the terms and conditions that apply to more than one emission unit. The permittee is subject to the special conditions for each flexible group in addition to the General Conditions in Part A and any other terms and conditions contained in this ROP.

The permittee shall comply with all specific details in the special conditions and the underlying applicable requirements cited. If a specific condition type does not apply, NA (not applicable) has been used in the table. If there are no special conditions that apply to more than one emission unit, this section will be left blank.

FLEXIBLE GROUP SUMMARY TABLE

The descriptions provided below are for informational purposes and do not constitute enforceable conditions.

Flexible Group ID	Flexible Group Description	Associated Emission Unit IDs
FGPCCPLANT	All process equipment utilized to produce precipitated calcium carbonate. Process operations started July 5, 2014.	EUCARBONATORS EULIME EUCOOLTWR EUROAD

FG PCCPLANT
FLEXIBLE GROUP CONDITIONS

DESCRIPTION

All process equipment utilized to produce precipitated calcium carbonate.

Emission Units: EUCARBONATORS, EULIME, EUCOOLTWR, EUROAD

POLLUTION CONTROL EQUIPMENT

NA

I. EMISSION LIMIT(S)

Pollutant	Limit	Time Period/ Operating Scenario	Equipment	Monitoring/ Testing Method	Underlying Applicable Requirements
1. PM10	6.46 tpy[2]	Calendar Year	FGPCCPLANT	SC VI.2	**R 336.1205(1) R 336. 2803 R 336. 2804 R 336.2818**
2. PM2.5	6.40 tpy[2]	Calendar Year	FGPCCPLANTS2	SC VI.2	**R 336.1205(1) R 336. 2803 R 336. 2804 R 336.2818**

II. MATERIAL LIMIT(S)

Material	Limit	Time Period/ Operating Scenario	Equipment	Monitoring/ Testing Method	Underlying Applicable Requirements
NA	NA	NA	NA	NA	NA

III. PROCESS/OPERATIONAL RESTRICTION(S)

NA

IV. DESIGN/EQUIPMENT PARAMETER(S)

NA

V. TESTING/SAMPLING

Records shall be maintained on file for a period of five years. **(R 336.1213(3)(b)(ii))**

NA

See Appendix 5

VI. MONITORING/RECORDKEEPING

Records shall be maintained on file for a period of five years. **(R 336.1213(3)(b)(ii))**

1. The permittee shall maintain a record of the number and weight of trucks transporting material to and from the emission units in FGPCCPLANT. [2] **(R 336.1205, R 336.1331, R 336.2803, R 336.2804, 40 CFR 52.21(c) and (d))**

2. The permittee shall calculate and keep records of the annual emissions of PM10 and PM2.5 from EUCARBONATORS, EULIME, EUCOOLTWR, and EUROAD per 40 CFR 52.21(r)(6)(iii), in tons per year on a calendar year basis, as required in Special Condition I.1, and I.2. Calculations and record keeping shall begin in July, 2014 and shall continue for 5 years. [2] **(40 CFR 52.21(r)(6)(iii), R 336.2818)**

3. The permittee shall calculate and keep records of the annual emissions of PM10 and PM2.5 from EULK29 per 40 CFR 52.21(r)(6)(iii), in tons per year on a calendar year basis. Calculations and record keeping shall begin in July, 2014 and shall continue for 5 years. [2] **(40 CFR 52.21(r)(6)(iii), R 336.2818)**

See Appendix 7

VII. <u>REPORTING</u>

1. Prompt reporting of deviations pursuant to General Conditions 21 and 22 of Part A. **(R 336.1213(3)(c)(ii))**

2. Semiannual reporting of monitoring and deviations pursuant to General Condition 23 of Part A. The report shall be postmarked or received by the appropriate AQD District Office by March 15 for reporting period July 1 to December 31 and September 15 for reporting period January 1 to June 30. **(R 336.1213(3)(c)(i))**

3. Annual certification of compliance pursuant to General Conditions 19 and 20 of Part A. The report shall be postmarked or received by the appropriate AQD District Office by March 15 for the previous calendar year. **(R 336.1213(4)(c))**

4. The permittee shall submit records of PM2.5 and PM10, emissions from EUCARBONATORS, EULIME, EUCOOLTWR, EUROAD, and EULK29 in tons per calendar year to both the AQD Permit Section Supervisor and the AQD District Supervisor within 60 days following the end of each calendar year, if both of the following apply:
   a. The calendar year actual emissions of PM2.5 and PM10, exceed the baseline actual emissions (BAE) by a significant amount, and
   b. The calendar year actual emissions differ from the pre-construction projection. The pre-construction projection is the sum of the projected actual emissions from each existing emission unit included in the Actual-to-Projected-Actual Applicability Test used for FGPCCPLANT as described in Appendix A.

   The report shall contain the name, address, and telephone number of the facility; the annual emissions as calculated pursuant to FGPCCPLANT, SC VI.2; and any other information the owner or operator wishes to include (i.e., an explanation why emissions differ from the pre-construction projection). [2] **(R 336.2818, 40 CFR Part 52.21(r)(6)(iii))**

See Appendix 8

VIII. <u>STACK/VENT RESTRICTION(S)</u>

The exhaust gases from the stacks listed in the table below shall be discharged unobstructed vertically upwards to the ambient air unless otherwise noted:

Stack & Vent ID	Maximum Exhaust Dimensions (inches)	Minimum Height Above Ground (feet)	Underlying Applicable Requirements
NA	NA	NA	NA

IX. OTHER REQUIREMENT(S)

1. The permittee shall install and maintain fencing, warning signs, video surveillance, regular patrols and/or other measures as necessary to prevent unauthorized individuals from entering the plant property and buildings. [2] **(R 336.1201(3), R 336. 2803, R 336. 2804, 40 CFR 52.21)**

Footnotes:
[1]This condition is state-only enforceable and was established pursuant to Rule 201(1)(b).
[2]This condition is federally enforceable and was established pursuant to Rule 201(1)(a).

E. NON-APPLICABLE REQUIREMENTS

At the time of the ROP issuance, the AQD has determined that the requirements identified in the table below are not applicable to the specified emission unit(s) and/or flexible group(s). This determination is incorporated into the permit shield provisions set forth in the General Conditions in Part A pursuant to Rule 213(6)(a)(ii). If the permittee makes a change that affects the basis of the non-applicability determination, the permit shield established as a result of that non-applicability decision is no longer valid for that emission unit or flexible group.

APPENDICES

Appendix 1. Acronyms and Abbreviations

Common Acronyms		Pollutant / Measurement Abbreviations	
AQD	Air Quality Division	acfm	Actual cubic feet per minute
BACT	Best Available Control Technology	BTU	British Thermal Unit
CAA	Clean Air Act	°C	Degrees Celsius
CAM	Compliance Assurance Monitoring	CO	Carbon Monoxide
CEM	Continuous Emission Monitoring	CO_2e	Carbon Dioxide Equivalent
CFR	Code of Federal Regulations	dscf	Dry standard cubic foot
COM	Continuous Opacity Monitoring	dscm	Dry standard cubic meter
Department/ department	Michigan Department of Environment, Great Lakes and Energy~~al Quality~~	°F	Degrees Fahrenheit
		gr	Grains
EU	Emission Unit	HAP	Hazardous Air Pollutant
FG	Flexible Group	Hg	Mercury
GACS	Gallons of Applied Coating Solids	hr	Hour
GC	General Condition	HP	Horsepower
GHGs	Greenhouse Gases	H_2S	Hydrogen Sulfide
HVLP	High Volume Low Pressure*	kW	Kilowatt
ID	Identification	lb	Pound
IRSL	Initial Risk Screening Level	m	Meter
ITSL	Initial Threshold Screening Level	mg	Milligram
LAER	Lowest Achievable Emission Rate	mm	Millimeter
MACT	Maximum Achievable Control Technology	MM	Million
MAERS	Michigan Air Emissions Reporting System	MW	Megawatts
MAP	Malfunction Abatement Plan	NMOC	Non-methane Organic Compounds
~~MDEQ~~EGLE	Michigan Department of Environment, Great Lakes, and Energy~~al Quality~~	NO_x	Oxides of Nitrogen
		ng	Nanogram
MSDS	Material Safety Data Sheet	PM	Particulate Matter
NA	Not Applicable	PM10	Particulate Matter equal to or less than 10 microns in diameter
NAAQS	National Ambient Air Quality Standards		
NESHAP	National Emission Standard for Hazardous Air Pollutants	PM2.5	Particulate Matter equal to or less than 2.5 microns in diameter
NSPS	New Source Performance Standards	pph	Pounds per hour
NSR	New Source Review	ppm	Parts per million
PS	Performance Specification	ppmv	Parts per million by volume
PSD	Prevention of Significant Deterioration	ppmw	Parts per million by weight
PTE	Permanent Total Enclosure	psia	Pounds per square inch absolute
PTI	Permit to Install	psig	Pounds per square inch gauge
RACT	Reasonable Available Control Technology	scf	Standard cubic feet
ROP	Renewable Operating Permit	sec	Seconds
SC	Special Condition	SO_2	Sulfur Dioxide
SCR	Selective Catalytic Reduction	TAC	Toxic Air Contaminant
SNCR	Selective Non-Catalytic Reduction	Temp	Temperature
SRN	State Registration Number	THC	Total Hydrocarbons
TEQ	Toxicity Equivalence Quotient	tpy	Tons per year
USEPA/EPA	United States Environmental Protection Agency	µg	Microgram
		µm	Micrometer or Micron
VE	Visible Emissions	VOC	Volatile Organic Compounds
		yr	Year

*For HVLP applicators, the pressure measured at the gun air cap shall not exceed 10 psig.

Appendix 2-2. Schedule of Compliance

The permittee certified in the ROP application that this stationary source is in compliance with all applicable requirements and the permittee shall continue to comply with all terms and conditions of this ROP. A Schedule of Compliance is not required. **(R 336.1213(4)(a), R 336.1119(a)(ii))**

Appendix 3-2. Monitoring Requirements

Specific monitoring requirement procedures, methods or specifications are detailed in Part A or the appropriate Source-Wide, Emission Unit and/or Flexible Group Special Conditions. Therefore, this appendix is not applicable.

Appendix 4-2. Recordkeeping

Specific recordkeeping requirement formats and procedures are detailed in Part A or the appropriate Source-Wide, Emission Unit and/or Flexible Group Special Conditions. Therefore, this appendix is not applicable.

Appendix 5-2. Testing Procedures

Specific testing requirement plans, procedures, and averaging times are detailed in the appropriate Source-Wide, Emission Unit and/or Flexible Group Special Conditions. Therefore, this appendix is not applicable.

Appendix 6-2. Permits to Install

The following table lists any PTIs issued or ROP revision applications received since the effective date of the previously issued ROP No. MI-ROP-A0884-2008a.

Permit to Install Number	ROP Revision Application Number	Description of Equipment or Change	Corresponding Emission Unit(s) or Flexible Group(s)
84-13	201200171	The precipitated calcium carbonate (PCC) production process uses carbon dioxide gas which will be supplied by rerouting emissions from the existing EPC Lime Kiln. The PCC process requires the exhaust gases to be scrubbed before being used, so although PM is released during the PCC process, the PM concentrations from the PCC plant stack are less than the PM concentrations being rerouted from the Lime Kiln. The proposed PCC plant also has the flexibility to use liquid CO_2 as a back-up source of carbon dioxide. The PM concentrations from the carbonators stack are not expected to change regardless of the source of CO_2 that is used. This value is obtained from stack tests from other Omya PCC plants.	EUCARBONATORS EULIME EUCOOLINGTWR EUROAD

Appendix 7-2. Emission Calculations

The permittee shall use the following calculations in conjunction with monitoring, testing or recordkeeping data to determine compliance with the applicable requirements referenced in the ROP.

Data Rounding
Any readings, measurements, calculations, and records required by this permit and Department's Rules for Air Pollution Control shall be rounded to the nearest significant digit specified; i.e., for a limit specified as 0.5, 0.54 shall be 0.5, and 0.55 shall be 0.6.

Appendix 8-2. Reporting

A. Annual, Semiannual, and Deviation Certification Reporting

The permittee shall use the ~~MDEQ~~EGLE, AQD, Report Certification form (EQP 5736) and ~~MDEQ~~EGLE, AQD, Deviation Report form (EQP 5737) for the annual, semiannual and deviation certification reporting referenced in the Reporting Section of the Source-Wide, Emission Unit and/or Flexible Group Special Conditions. Alternative formats must meet the provisions of Rule 213(4)(c) and Rule 213(3)(c)(i), respectively, and be approved by the AQD District Supervisor.

B. Other Reporting

Specific reporting requirement formats and procedures are detailed in Part A or the appropriate Source-Wide, Emission Unit and/or Flexible Group Special Conditions. Therefore, Part B of this appendix is not applicable.

Appendix 9-2. Actual to Projected Actual ~~Emisisons~~Emissions

Recordkeeping Provisions for PSD Source Using Actual to Projected Actual Applicability Test

All information in this Appendix shall be maintained pursuant to 40 CFR 52.21 (r)(6)(i) for 10 years after the emission units identified in Table C resume normal operation.

A. Project Description:
Omya, Inc. proposed the construction and operation of a new precipitated calcium carbonate (PCC) plant located at the existing Escanaba Paper Company, pulp and paper mill located in Escanaba, Michigan. The proposed PTI will be rolled into Escanaba's ROP but it is owned/operated by Omya, Inc.

B. Applicability Test Description:
Omya, Inc. has demonstrated that the proposed modification of the PCC plant will not cause a significant emissions increase in the existing plant emissions. This is based on a calculation of past actual to projected actual emissions (A2A).

C. Emission Limitations

Emission Unit/Flexible Group ID	Pollutant	Baseline Actual Emissions (tpy)	Projected Actual Emissions (tpy)	*Projected Increase in Emissions:*
EUCARBONATORS	PM10	0	4.96 tpy	*4.96 tpy*
EUCARBONATORS	PM2.5	0	4.96 tpy	*4.96 tpy*
EULIME	PM10	0	0.34 tpy	*0.34 tpy*
EULIME	PM2.5	0	0.34 tpy	*0.34 tpy*
EUCOOLTWR	PM10	0	1.09 tpy	*1.09 tpy*

Emission Unit/Flexible Group ID	Pollutant	Baseline Actual Emissions (tpy)	Projected Actual Emissions (tpy)	*Projected Increase in Emissions:*
EUCOOLTWR	PM2.5	0	1.09 tpy	*1.09 tpy*
EUROAD	PM10	0	0.06 tpy	*0.06 tpy*
EUROAD	PM2.5	0	0.01 tpy	*0.01 tpy*
EULK29*	PM10	22.79 tpy	25.23 tpy	*2.44 tpy*
EULK29*	PM2.5	20.13 tpy	22.28 tpy	*2.15 tpy*
Total Projected Increase in PM10 emissions:				*8.89 tpy*
Total Projected Increase in PM2.5 emissions:				*8.55 tpy*
*EULK29 is the Lime Kiln System which is permitted, operated, and owned by Escanaba Paper Company (SRN: A0884). EULK29 is not included in FGPCCPLANT				

D. Applicability Test Discussion:

The PCC plant will be new, but it is being reviewed as a modification to an existing major source. The A2A analysis uses the “hybrid” test. In order to determine projected emission increase (PEI), the potential emissions from the new PCC plant were added to the increase between the baseline actual emissions (BAE) and the projected actual emissions (PAE) of the existing facility. No Excludable Emissions (EE) were included during the A2A review.

The PCC production process uses carbon dioxide gas which will be supplied by rerouting emissions from the existing Lime Kiln. The PCC process requires the exhaust gases to be scrubbed before being used, so although PM is released during the PCC process, the PM concentrations from the PCC plant stack are less than the PM concentrations being rerouted from the Lime Kiln. The proposed PCC plant also has the flexibility to use liquid CO_2 as a back-up. The PM concentrations from the carbonator stack are not expected to change regardless of the source of CO_2 that is used. This value is obtained from stack tests from other Omya, Inc. PCC plants.

The Lime kiln was assumed to use 100% fuel oil and increase lime production in projected emission calculations. Emissions from the PCC plant cooling tower, storage silo, and increased road usage were included in the projected actual emissions. PM_{10} and $PM_{2.5}$ exceed 50% of the significant levels when it is assumed that none of the exhaust is routed from the Lime Kiln and carbon dioxide is provided from liquid CO_2. Therefore additional recordkeeping is required for PM_{10} and $PM_{2.5}$.

CAM Plans

No. 9 Boiler

No. 11 Boiler

Thermal Oxidizer

Lime Slaker

Lime Storage

Verso Escanaba LLC
CAM Plan
No. 9 Boiler
Wet Scrubber for Particulate Matter Control
May 2020

I. BACKGROUND

A. Emissions Unit

Description:	No. 9 Boiler System – No. 9 Boiler
Identification:	EU9B03
Facility:	Escanaba Facility

B. Applicable Regulations, Emission Limit, and Monitoring Requirements

Regulation No.:	R336.1201, R336.1331
Uncontrolled Emission Limit:	No limit, but would be >100 tpy PM
Controlled Emission Limit:	PM <= 0.50 lb/1000 lbs exhaust gas, at 50% excess air if wood residue is >75% of the total heat input. If wood residue is <=75% of the total heat input, then PM shall not exceed the fraction of total heat input from the wood residue times 0.67 lb/1000 lbs exhaust gas, at 50% excess air.
Monitoring Requirements:	Pressure drop (dP) Scrubber liquid flow rate

Control Technology

Wet Scrubber

II. MONITORING APPROACH

The key elements of the monitoring approach are presented below:

A. Indicators

Pressure drop
Scrubber liquid flow rate

B. Measurement Approach

Analytical Devices:

Pressure drop indicator:	(2) Rosemount 115HP4S22 dP Transmitter
Water supply pressure gauge:	(2) Yokogawa – Integral type magnetic flow AE215MG-AA1-PSA-AIDH/BR/HAL

Monitoring Locations:

Pressure drop indicator:	Inlet and outlet of the scrubber
Scrubber liquid flow meter:	Pump discharge

C. **Indicator Range**

Pressure drop:	Minimum of 3 inches of water column (3" W.C.) on both the North and South Scrubbers based on a 3-hour averaging time.
Scrubber liquid flow rate:	Minimum of 900 gallons per minute (GPM) on both the North and South Scrubbers, based on a 3-hour averaging time.

D. **Performance Criteria**

Data Representativeness:	The pressure is measured at the inlet and outlet of the scrubbers. Scrubber liquid flow rates are measured at the pump discharge.
QA/QC Procedures:	The air cleaning devices are maintained and operated in a satisfactory manner and in accordance with the Michigan Air Pollution Control Rules and existing law. There is an Inspection and Maintenance Program which documents records of inspections, problems found, repairs done, and/or corrective action taken. Indicators are calibrated and maintained according to manufacturer's specifications and/or good engineering practice.
Monitoring Frequency:	Continuous
Reporting Units:	" W.C. and GPM
Recording Process:	Continuously monitored and recorded on 3-hour averages
Data Requirements:	The measurements are compared to manufacturer's specifications.

III. JUSTIFICATION

A. Background

The emission unit is the No. 9 Boiler which burns primarily wood residue, but may also burn natural gas, and paper cores. Particulate emissions are currently controlled by two wet scrubbers, operating in parallel, with approximately 50% of the exhaust gas flow rate going through each scrubber body. Particulate is removed by physical contact with the scrubbing medium.

B. Rationale for Selection of Performance Indicators

Use of a pressure drop and water flow are good indicators of scrubber performance to ensure proper liquid to particulate matter contact for effective removal of the particulate matter from the air stream. If the scrubber pressure drop or water flow falls below the indicator levels, optimum contact between scrubber liquid and particulate matter in the air stream may not be achieved.

C. Rationale for Selection of Indicator Levels

The selected indicator ranges are a minimum scrubber pressure drop of 3" W.C. and a minimum water flow of 900 GPM to each control device. These indicator ranges are based on manufacturer's recommendations and historic stack testing results that demonstrate compliance with the requirements of the Title V Permit. Corrective actions are taken following any excursion from these indicators.

Verso Escanaba LLC
CAM Plan
No. 11 Boiler
ESP for Particulate Matter Control
May 2020

I. BACKGROUND

A. Emissions Unit

Description:	No. 11 Boiler System – No. 11 Boiler
Identification:	EU11B68
Facility:	Escanaba Facility

B. Applicable Regulations, Emission Limit, and Monitoring Requirements

Regulation No.:	R336.1201, 40 CFR 52.21, 40 CFR Part 60 Subpart D
Uncontrolled Emission Limit:	No limit, but would be >100 tpy PM
Controlled Emission Limit:	PM <= 0.06 lb/MMBtu
Monitoring Requirements:	Opacity as monitored by a Continuous Opacity Monitoring System (COMS)

Control Technology

Dry Electrostatic Precipitator

II. MONITORING APPROACH

The key elements of the monitoring approach are presented below:

A. Indicators

Opacity

B. Measurement Approach

Analytical Devices:	Sick Optics – Dusthunter T200
Monitoring Locations:	Flue gas duct

C. Indicator Range

Opacity	0-100%

D. Performance Criteria

Data Representativeness:	The COMS continuously monitors and records opacity in the duct.
QA/QC Procedures:	The air cleaning devices are maintained and operated in a satisfactory manner and in accordance with the Michigan Air Pollution Control Rules and existing law. The source is subject to an Inspection and Maintenance Program, which includes keeping of records of inspections done, problems found, repairs done and/or corrective action taken. Additionally, the COMS is operated and maintained in accordance with 40 CFR Part 60, Appendix F and MDEQ standards.
Monitoring Frequency:	Continuous
Reporting Units:	% Opacity
Recording Process:	Continuously monitored and recorded on 6 minute averages.
Data Requirements:	A comparison of COMS readings taken during PM emission tests shows that compliance was demonstrated at opacity levels <20%.

III. JUSTIFICATION

A. Background

The emission unit is the No. 11 Boiler. Particulate emissions are currently controlled by an electrostatic precipitator. Particulate is given an electrical charge and collected from the air stream as it passes through the high voltage area of the device.

B. Rationale for Selection of Performance Indicators

Opacity below 20%, based on a 6-minute averaging time, is a good indicator of ESP performance as long as proper maintenance is performed.

C. Rationale for Selection of Indicator Levels

The compliance stack test for the No. 11 Boiler in September 2010 indicated particulate emission rates of 0.0578 lb/MMBtu compared to the permit limitation of 0.06 lb/MMBtu. Opacity during the performance tests was less than 20%.

Verso Escanaba LLC
CAM Plan
Thermal Oxidizer System
Packed Scrubber for Sulfur Dioxide (SO_2) Control
May 2020

I. BACKGROUND

A. Emissions Unit

Description:	Thermal Oxidizer System
Identification:	EUOC33
Facility:	Escanaba Facility

B. Applicable Regulations, Emission Limit, and Monitoring Requirements

Regulation No.:	R336.1201
Uncontrolled Emission Limit:	No limit, but would be >100 tpy SO_2
Controlled Emission Limit:	SO_2 <= 55 ppm nor 12 lbs/hour, based on a 12-hour averaging time
Monitoring Requirements:	Scrubber liquid feed rate pH of scrubbing liquid Pressure drop

Control Technology

Packed Scrubber

II. MONITORING APPROACH

The key elements of the monitoring approach are presented below:

A. Indicators

Scrubber liquid feed rate (GPM)
pH of scrubbing liquid (su)
Pressure drop ("W.C.)

B. Measurement Approach

Analytical Devices:

Scrubber Liquid Feed Rate:	(2) Rosemount 6"- 8701TSA060S1 - 8712CR12M4
pH of Scrubbing Liquid:	(2) Yokogawa FU20-10-T1-NPT/FS
Pressure Drop:	Moore 340DBBTTCB5N21
Monitoring Locations:	Scrubber liquid feed rate: inlet to scrubber pH of scrubbing liquid: inlet to scrubber Pressure drop: inlet and outlet of scrubber

C. Indicator Range

Scrubber Liquid Feed Rate:	Min. of 536 GPM (1st Stage) – 122 GPM (2nd Stage)
pH of Scrubbing Liquid:	Min. of 6.3 su (1st Stage) – 7.8 su (2nd Stage)
Pressure Drop:	Min. of 0.5" W.C.

D. Performance Criteria

QA/QC Procedures:	The air cleaning devices are maintained and operated in a satisfactory manner and in accordance with the Michigan Air Pollution Control Rules and existing law. There is an Inspection and Maintenance Program which documents records of inspections, problems found, repairs done, and/or corrective action taken. Indicators are calibrated and maintained according to manufacturer's specifications and/or good engineering practice.
Monitoring Frequency:	Continuous
Reporting Units:	GPM, pH, " W.C.
Recording Process:	Continuously monitored and recorded on 3-hr averages
Data Requirements:	The measurements are compared to manufacturer's specifications and compliance stack test results

III. JUSTIFICATION

A. Background

The emission unit is the Thermal Oxidizer. SO_2 emissions are currently controlled by a packed scrubber. SO_2 is removed by physical contact with the scrubbing liquid and medium.

B. Rationale for Selection of Performance Indicators

Use of scrubber liquid feed rate, pH of the scrubbing liquid, and scrubber pressure drop are good indicators of scrubber performance to ensure proper liquid supply, contact time, and chemical availability for effective removal of the SO_2 from the air stream.

C. Rationale for Selection of Indicator Levels

The selected indicator ranges of 536/122 GPM, 6.3/7.8 pH, and 0.5" W.C. are based on compliance stack testing completed in October 2010. The SO_2 emissions were 24.4 ppm and 1.27 lbs/hr during this testing versus the limit of 55 ppm and 12 lbs/hr. Corrective actions are taken following any excursion from these indicators.

Verso Escanaba LLC
CAM Plan
Lime Slaker
Wet Scrubber for Particulate Matter Control
May 2020

I. BACKGROUND

A. Emissions Unit

Description:	Recausticizing System – Lime Slaker
Identification:	EUS29
Facility:	Escanaba Facility

B. Applicable Regulations, Emission Limit, and Monitoring Requirements

Regulation No.:	R336.1331
Uncontrolled Emission Limit:	No limit, but would be >100 tpy PM
Controlled Emission Limit:	PM <= 0.10 lbs/1000 lbs exhaust gas
Monitoring Requirements:	Scrubber liquid flow rate

Control Technology

Wet Scrubber

II. MONITORING APPROACH

The key elements of the monitoring approach are presented below:

A. Indicators

Scrubber liquid flow rate

B. Measurement Approach

Analytical Devices:	Johnson-Yokogawa AE-ZIO MG-CB1 ESA-A1D4
Monitoring Locations:	Scrubber liquid inlet pipe

C. Indicator Range

Scrubber Liquid Flow Rate:	Minimum flow of 150 GPM, based on a 3-hour averaging time.

D. **Performance Criteria**

Data Representativeness:	The scrubber liquid flow rate is measured at the inlet to the control device.
QA/QC Procedures:	The air cleaning devices are maintained and operated in a satisfactory manner and in accordance with the Michigan Air Pollution Control Rules and existing law. There is an Inspection and Maintenance Program which documents records of inspections, problems found, repairs done, and/or corrective action taken. Indicators are calibrated and maintained according to manufacturer's specifications and/or good engineering practice.
Monitoring Frequency:	Continuous
Reporting Units:	Gallons per Minute (GPM)
Recording Process:	Data is monitored continuously and recorded on 3-hour averages.
Data Requirements:	The flow is monitored continuously and recorded on 3-hour averages to ensure compliance with manufacturer's specifications and compliance stack test results.

III. JUSTIFICATION

A. Background

The emission unit is the Lime Slaker. The Lime Slaker is considered running when the green liquor flow to the slaker is greater than 300 gpm. The particulate emissions are controlled by the scrubber using green liquor as the scrubbing medium.

B. Rationale for Selection of Performance Indicators

Use of a minimum scrubber liquid flow rate is a good indicator of scrubber performance to ensure proper liquid to particulate matter contact for effective removal of the particulate matter from the air stream. If the scrubber liquid flow rate falls below the indicator level, optimum contact between the scrubber liquid and particulate matter in the air stream may not be achieved.

C. Rationale for Selection of Indicator Levels

The selected indicator range is a minimum scrubber liquid flow rate of 150 GPM to the control device. This flow is based on a 2011 compliance stack test which demonstrated compliance with the emission limit. The emission rate was 0.0796 lbs/1000 lbs. exhaust at operating conditions versus a limit of 0.10 lbs/1000 lbs exhaust. The indicator range is also based on good engineering judgment. Corrective actions are taken following any excursion from this indicator.

Verso Escanaba LLC
CAM Plan
Lime Storage Bins
Baghouse for Particulate Matter Control
May 2020

I. BACKGROUND

A. Emissions Unit

Description:	Lime Kiln System – Two Lime Storage Bins
Identification:	EULKI29
Facility:	Escanaba Facility

B. Applicable Regulations, Emission Limit, and Monitoring Requirements

Regulation No.:	R336.1331
Uncontrolled Emission Limit:	No limit, but would be >100 tpy PM
Controlled Emission Limit:	PM <= 0.10 lbs/1000 lbs exhaust gas
Monitoring Requirements:	Pressure Drop

Control Technology

Baghouse

II. MONITORING APPROACH

The key elements of the monitoring approach are presented below:

A. Indicators

Pressure Drop (Inches of water column)

B. Measurement Approach

Analytical Devices:

Pressure Gauges	Rosemount Model 3051S1CD3A3F12A1AB3D2E5L4M5
Monitoring Locations:	Measured across the baghouse

C. Indicator Range

Pressure Drop:	Minimum pressure drop of 0.25 inches of water on a daily average.

D. **Performance Criteria**

Data Representativeness:	The pressure drop is measured across the scrubber.
QA/QC Procedures:	The air cleaning devices are maintained and operated in a satisfactory manner and in accordance with the Michigan Air Pollution Control Rules and existing law. There is an Inspection and Maintenance Program which documents records of inspections, problems found, repairs done, and/or corrective action taken. Indicators are calibrated and maintained according to manufacturer's specifications and/or good engineering practice.
Monitoring Frequency:	Daily
Reporting Units:	Inches of water
Recording Process:	The data is monitored continuously and recorded on a daily average.
Data Requirements:	The measurement is recorded daily for comparison to the operating limits.

III. JUSTIFICATION

A. Background

The emission unit is the Lime Handling System for the two Lime Storage Bins. Particulate emissions are currently controlled by a common baghouse. Particulate is removed from the air stream as it passes through tightly woven fabric.

B. Rationale for Selection of Performance Indicators

Use of a pressure drop range is a good indicator of baghouse performance to ensure effective removal of particulate matter from the air stream. If the pressure drop falls below the indicator level, the bags may be ripped and optimum removal of particulate matter in the air stream may not be achieved.

C. Rationale for Selection of Indicator Levels

The selected indicator range is based on historical operational performance, engineering judgment, and visual inspections of the baghouse to ensure optimum baghouse performance. In addition to monitoring the differential pressure continuously and recording the daily average, the exhaust of the baghouse is visually inspected on a weekly basis to ensure it is operating correctly. Corrective actions are taken if the differential pressure is low or if visible emissions are observed.

Title V Inspection and Maintenance (I&M) Plan

Inspection and Maintenance Plan for Title V

2020

File 8.26.9.3

Violation of I&M Plan
l to do and in current year (and/or document SAP completion d
Requirement is Met
White items ongoing
For the yellow items we need to determine if a maintenance plan is needed, or if other means of tracking is appropriate.
Orange items are inspected weeky during a Operator Driven Realibility (ODR) inspection route. If any of the inspected units do not meet proper operating conditions during the weekly inspection a Work Order will be issued to correct the problem. To meet compliance with the Inspection and Maintenance Plan a minimum of one route will need to be completed annually.

Area	Air Cleaning Equipment	Required Preventative Maintenance	Functional Location PM is written to	Frequency of Work	Who Performs the Work	Maintenance Plan Numbers/Recordkeeping	COMMENTS for certification
Woodyard	#1 Chipper Cyclone	1. Inspect equipment for wear	EM-WY1-CNVS-CHIPPR-CY1440690	Annually	Maintenance	8196	
	#2 Chipper Cyclone		EM-WY1-CNVS-CHIPPR-CY1440680			17908	
	#1 Chip Reclaim Cyclone		EM-WY1-CNVS-PURCHS-CY1444125			8197	
	#2 Chip Reclaim Cyclone		EM-WY1-CNVS-PURCHS-CY1444135			8198	
	#1A Air Density Separator Cyclone		EM-WY1-SCRN-ADSSYS-CY1444555			8201	
	#2A Air Density Separator Cyclone		EM-WY1-SCRN-ADSSYS-CY1444340			8199	
	#1B Air Density Separator Cyclone		EM-WY1-SCRN-ADSSYS-CY1444660			8202	
	#2B Air Density Separator Cyclone		EM-WY1-SCRN-ADSSYS-CY1444450			8200	
	Reclaim, Chipper, and ADS Cyclones	2. Visible emissions check		Weekly during operation	1st helper	Checklist	
RMP Mill	Chip Silo Cyclone Chip Surge Bin Cyclone	1. Inspect equipment for wear	EM-RMP-REFS-CPSILO-CY6141000	Annually	Mechanical Maintenance	18103	
			EM-RMP-REFS-CPSILO-CY6141690			18104	
		2. Visible emissions check		Weekly during operation	1st helper	Checklist	
	Bleach Plant Scrubbers EM-PMK-BLH6-SCRUBR-SB2543300	1. Inspect packing for scaling and supports for failure. Inspect shower bars and nozzles. Flush out sump tanks.	EM-PMK-BLH6-SCRUBR-SB2543300	Annually	Day supervisor and crew	17909	
			EM-PMK-BLH6-SCRUBR-SB2543320			17910	
		2. Check level switch on both recycle scrubber tanks (25-LIX-0911 &25-LX-0921). Calibrate level transmitters. Make sure differential pressure lines across packing are not plugged.	EM-PMK-BLH6-250911	Annually	E&I Maintenance	54899	
			EM-PMK-BLH6-250921			54981	
			EM-PMK-BLH6-250916			54900	
			EM-PMK-BLH6-250926			54982	
		3. PM #1 recirculation pump (checked weekly) (E-KM-SCB1-1ET-1N)	EM-PMK-BLH6-SCRUBR-PU2543310	Annually	Mechanical Maintenance		
		4. PM #2 recirculation pump (checked weekly) (E-KM-SCB1-1ET-1N)	EM-PMK-BLH6-SCRUBR-PU2543330	Annually	Mechanical Maintenance		
		5. PM #3 recirculation pump	EM-PMK-BLH6-SCRUBR-PU2543360	Once every 3 years	Mechanical Maintenance	17931	
		6. PM bleach plant roof fan (discharge of scrubber) (working on route) (E-KM-ROOFFANS-2ET-XX)	EM-PMK-BLH6-SCRUBR-FN2543165	Annually	Mechanical Maintenance		
		7. Verify #1 and #2 scrubber ORP measurement	EM-BGS-AR06-BLDG48	Quarterly	E&I Maintenance	62089	L:\Local Initiatives\Are
		8. Verify calibration of No. 2 scrubber recirc pump	EM-PMK-BLH6-250922	Annually	E&I Maintenance	63854	
		9. Verify calibration of No. 1 scrubber recirc pump	EM-PMK-BLH6-250912	Annually	E&I Maintenance	63853	
	ClO2 Tail Gas Scrubber	1. PM the vent scrubber fan (checked weekly) (E-KM-GEN-1ET-2N-ODR)	EM-PMK-CHEM-CLO2GN-FN1841220	Annually	Mechanical Maintenance		
		2. PM the vent scrubber	EM-PMK-CHEM-CLO2GN-SB1841180	Once every 5 years	Mechanical Maintenance	6986	
		1. Inspect the slaker scrubber and vent piping for build-up	EM-CRC-LKN1-SLAKER-FN2942210	As required	Lime Kiln Utility		

Area	Air Cleaning Equipment	Required Preventative Maintenance	Functional Location PM is written to	Frequency of Work	Who Performs the Work	Maintenance Plan Numbers/Recordkeeping	COMMENTS for certification
Kraft Mill	Slaker Scrubber EM-CRC-LKN1-SLAKER-SB2942200	2. PM the scrubber exhaust fan (checked weekly)(E-LK-HOTO-OPR-1N)	EM-PMK-AIRP-SLSCRB-FN2942210	Annually	Mechanical Maintenance		
		3. PM Slaker Scrubber Flow Meter	EM-PMK-AIRP-290600	Annually	E&I Maintenance	57689	
	Lime Kiln and Scrubber EM-CRC-LKN1-SCRUBR-SB3340445 EM-CRC-LKN1-SCRUBR-SB3340446	1. Inspect refractory, inspect chain section, inspect burner	EM-CRC-LKN1-KILNSY-MZ2940270	Annually	Day supervisor	17936	
		2.a. Calibrate and clean scrubber flow valve.	EM-PMK-AIRP-290434	Annually	E&I Maintenance	55010	
		2.b. Calibrate scrubber throat damper.	EM-CRC-LKN1-330399			55007	
		2.c. Calibrate scrubber throat differential pressure.	EM-CRC-LKN1-330398			54850	
		2.d. Calibrate the scrubber sump level and control valve.	EM-CRC-LKN1-330396			55001	
		3. Clean recirculation lines, mist eliminator, induced draft fan blades, scrubber throat and damper. Shovel out solids that collect in bottom of sump.	EM-PMK-AIRP-LKSCRUB-SB3340445	Annually	Maintenance	17938	
		4. PM the dilution air fan to the lime kiln	EM-CRC-LKN1-FUELSY-BL2942245	Once every 2 years	Mechanical Maintenance	6174	
		5. PM the bearing cooling water pump for the lime kiln bearings	EM-CRC-LKN1-KILNSY-PU2940430	Once every 4 years	Mechanical Maintenance	6186	
		6. PM the auxiliary engine gear reducer	EM-CRC-LKN1-KILNSY-GR2940285	Once every 6 years	Mechanical Maintenance	17937	
		7. PM the NCG booster fan (checked weekly) (E-LK-HOTO-OPR-1N)	EM-CRC-LKN1-FUELSY-FN2942265	Once every 3 years	Mechanical Maintenance		
		8. PM south scrubber circulation pump (checked weekly) (E-LK-MUDB-UTL-5N)	EM-PMK-AIRP-LKSCRB-PU3340450	Once every 3 years	Mechanical Maintenance		
		9. PM north scrubber circulation pump (checked weekly) (E-LK-MUDB-UTL-5N)	EM-PMK-AIRP-LKSCRB-PU3340470	Once every 3 years	Maintenance		
		11. PM the Lime Kiln Scrubber Flow Meter	EM-PMK-AIRP-330434	Annually	E&I Maintenance	57691	
	Lime Unloading Silo Baghouse EM-CRC-LKN1-LIMEBN-FL2940472	1. Inspect equipment for wear	EM-CRC-LKN1-LIMEBN-FL2940472	Annually	Lime Kiln Utility	17901	
		2. Visible emissions check		Weekly during operation	Lime Kiln Utility	Checklist	
		3. PM the dP transmitter as needed. The E/I techs typically calibrate to zero & span, rod the pressure taps, & check DCS span	EM-CRC-LKN1-290117	Annually	E&I Maintenance	17131	
		1. PM the #1 blow tank vacuum breaker	EM-PMK-DIGS-220405	Annually	Mechanical Maintenance	7018	
		2. PM the #2 blow tank vacuum breaker	EM-PMK-DIGS-220455	Annually	Mechanical Maintenance	7019	
		3. PM the accumulator vacuum breaker	EM-PMK-AIRP-BLHEAT	Annually	Mechanical Maintenance	6874	
		4. PM the jet condenser pump *(checked Weekly) (E-KM-BH1F-2ET-4N)*	EM-PMK-AIRP-BLHEAT-PU3340612	Once every 3 years	Mechanical Maintenance		
		5. PM the "A" system condensate pump (checked weekly) (E-KM-BH1F-2ET-4N)	EM-PMK-AIRP-BLHEAT-PU3340659	Once every 5 years	Mechanical Maintenance		
		6. PM the "B" system condensate pump (checked weekly) (E-KM-BH1F-2ET-4N)	EM-PMK-AIRP-BLHEAT-PU3341405	Once every 4 years	Mechanical Maintenance		
		7. PM the "A" system water pump (checked weekly) (E-KM-BH1F-2ET-4N)	EM-PMK-AUXE-WATERS-PU3340667	Once every 5 years	Mechanical Maintenance		
		8. PM the "B" system water pump (checked weekly) (E-KM-BH1F-2ET-4N)	EM-PMK-AUXE-WATERS-PU3341415	Once every 4 years	Mechanical Maintenance		
		Calibrate stripper column level	EM-PMK-AIRP-330212	Annually	E&I Maintenance	61322	
		Calibrate stripper condenser outlet temperature	EM-PMK-AIRP-330206	Annually	E&I Maintenance	55043	
		Calibrate stripper steam flow	EM-PMK-AIRP-330208	Annually	E&I Maintenance	55021	
		Calibrate accumulator top temperature	EM-PMK-AIRP-330713	Annually	E&I Maintenance	55018	
		Calibrate accumulator middle temperature	EM-PMK-AIRP-330715	Annually	E&I Maintenance	55018	
		Calibrate accumulator bottom temperature	EM-PMK-AIRP-330716	Annually	E&I Maintenance	55018	
		Calibrate jet condenser temperature	EM-PMK-AIRP-330101	Annually	E&I Maintenance	55018	

Area	Air Cleaning Equipment	Required Preventative Maintenance	Functional Location PM is written to	Frequency of Work	Who Performs the Work	Maintenance Plan Numbers/Recordkeeping	COMMENTS for certification
	Odor Control System, including Thermal Oxidizer and Scrubber EM-PMK-AIRP-INCINR-TO3341900, EM-PMK-AIRP-SO2SYS-SB3342200	Calibrate secondary blowheat condenser temperature	EM-PMK-AIRP-330732	Annually	E&I Maintenance	55018	
		Calibrate primary relief condenser temperature	EM-PMK-AIRP-330739	Annually	E&I Maintenance	55018	
		Calibrate vapor trap outlet temperature	EM-PMK-AIRP-330747	Annually	E&I Maintenance	55018	
		Calibrate jet condenser valves #101 and 104	EM-PMK-AIRP-330104	Annually	E&I Maintenance	55019	
		Check NCG gas valves	EM-PMK-AIRP-330355	Annually	E&I Maintenance	64041	
		PM the pump for water to primary relief condenser (checked weekly) (E-KM-BH1B-2ET-5N)	EM-PMK-AUXE-WATERS-PU3341530	Annually	Mechanical Maintenance		
		PM the water pump for stripper condenser (checked weekly) (E-KM-BH1B-2ET-5N)	EM-PMK-AUXE-WATERS-PU3340804	Annually	Mechanical Maintenance		
		Inspect refractory inside incinerator, secondary air bustle nozzles, NCG burner, and natural gas burner	EM-PMK-AIRP-INCINR-TO3341900	Annually	Day supervisor	8364	
		Calibrate incinerator gas valves	EM-PMK-AIRP-330415	Annually	E&I Maintenance	54980	
		Calibrate incinerator air valves/replace temperature probe	EM-PMK-AIRP-330465	Annually	E&I Maintenance	55047	
		PM the incinerator temperature probes (33-TX-0439, 0465, 0466, 0469)	EM-PMK-AIRP-330439	Annually	E&I Maintenance	55012	
		Calibrate or replace the temperature probe transmitter as needed.	EM-PMK-AIRP-330439	Annually	E&I Maintenance	55012	
		PM the primary air fan (checked weekly) (E-LK-INCI-OPR-5N)	EM-PMK-AIRP-INCINR-FN3341920	Annually	Mechanical Maintenance		
		PM the secondary air fan (checked weekly) (E-LK-INCI-OPR-5N)	EM-PMK-AIRP-INCINR-FN3341925	Annually	Mechanical Maintenance		
		Comparison of 1st and 2nd stage scrubber recirculation loop pH to lab data. Comparison of specific gravity of scrubber recirculation scrubbing medium to lab data. Typically each shift a sample is taken to compare the 1st & 2nd stage pH sensors values to lab values. If there is a significant difference a PM is written for the sensors.	EM-PMK-AIRP-330482 EM-PMK-AIRP-330481 EM-PMK-AIRP-330487	Each weekday	Kiln Utility	Go to the KM Processbook, click on the tab "Sensors" and open the "SO2 Scrubber pH/Density Sensor Vs. Lab" Verify that this data is being collected and entered into PI.	
		Inspect 1st and 2nd stage scrubber sumps for build-up. Inspect trays for scale build-up and orientation. Inspect spray nozzles for build-up. Inspect shroud on inlet to ID fan for corrosion	EM-PMK-AIRP-INCINR-TO3341900	Annually	Day supervisor	8363	
		PM the scrubber ID fan (checked weekly) (E-LK-INCI-OPR-5N)	EM-PMK-AIRP-SO2SYS-FN3342250	Annually	Mechanical Maintenance		
		PM the TO 1st Stage Scrubber Flow Meter	EM-PMK-AIRP-330483	Annually	E&I Maintenance	57684	
		PM the TO 2nd Stage Scrubber Flow Meter	EM-PMK-AIRP-330484	Annually	E&I Maintenance	57685	
		PM the TO Scrubber dP	EM-PMK-AIRP-330437	Annually	E&I Maintenance	57688	
	Soda Ash Storage Tank, EM-PMK-CHEM-SODASH-TK1842300	1. PM the soda ash unloading pump (checked weekly) (E-KM-TRNS-1ET-3N)	EM-PMK-CHEM-SODASH-PU1842325	Annually	Mechanical Maintenance		
		2. PM the soda ash pressure blower (checked weekly) (E-KM-TRNS-1ET-3N)	EM-PMK-CHEM-SODASH-BL1842370	Annually	Mechanical Maintenance		
		3. PM the soda ash vacuum blower (E-KM-TRNS-1ET-3N)	EM-PMK-CHEM-SODASH-BL1842360	Annually	Mechanical Maintenance		
		4. PM the soda ash slurolyzer	EM-PMK-CHEM-SODASH-MR1842320	Annually	Mechanical Maintenance	17940	
	Methanol Storage Tank, EM-PMK-CHEM-METHSY-TK1841100	1. PM the methanol tank conservation vent	EM-PMK-CHEM-METHSY-VN1841102	Once every 5 years	Mechanical Maintenance	6995	
BoHo & KM	Condensate Collection & Treatment System	1. Visually inspect for leaks		Monthly	Equipment Tender	KM and BoHo fill out Proficy logsheet LDAR inspection checklist each month.	
		2. PM the stripper column feed tank level indicator 33-LIX-205	EM-PMK-AIRP-330205	Annually	E&I Maintenance	61351	
		3. PM the stripper effluent tank level indicator 33-LX-0712	EM-PMK-AIRP-330712	Annually	E&I Maintenance	61354	
	Brownstock Washer System	1. Visually inspect for leaks		Monthly	Equipment Tender	KM and BoHo fill out Proficy logsheet LDAR inspection checklist each month.	
		1. Excess O2 sensor calibration		Once every 5 years	E&I Maintenance	Need Maintenance Plan	

Area	Air Cleaning Equipment	Required Preventative Maintenance	Functional Location PM is written to	Frequency of Work	Who Performs the Work	Maintenance Plan Numbers/Recordkeeping	COMMENTS for certification
	#7 Boiler MACT Tune-up Requirements	1. Flame pattern inspection		Once every 5 years	Boilerhouse Management	Contact Boilerhouse Business Unit Manager to ensure this is completed	
		1. Burner inspection - Boiler MACT		Once every 5 years	Boilerhouse Management	Contact Boilerhouse Business Unit Manager to ensure this is completed	
		1. Optimization of CO emissions 2. Measure CO and O2 levels before and after tune-up		Once every 5 years	Boilerhouse Management	Contact Boilerhouse Business Unit Manager to ensure this is completed	
	#8 Boiler MACT Tune-up Requirements	1. Excess O2 sensor calibration		Once every 5 year	E&I Maintenance	Need Maintenance Plan	
		1. Flame pattern inspection		Once every 5 years	Boilerhouse Management	Contact Boilerhouse Business Unit Manager to ensure this is completed	
		1. Burner inspection - Boiler MACT		Once every 5 years	Boilerhouse Management	Contact Boilerhouse Business Unit Manager to ensure this is completed	
		1. Optimization of CO emissions 2. Measure CO and O2 levels before and after tune-up		Once every 5 years	Boilerhouse Management	Contact Boilerhouse Business Unit Manager to ensure this is completed	
	#9 Boiler - Multiclone, and Scrubbers	1. Check primary water supply pump for proper operation and leaks. Check the backup supply pumps and verify ability to start. Check water supply tank and pump discharge piping to scrubber for possible leaks. Check that the scrubber recirculation pumps are running and free from leaks. Check that overflow pots have adequate flow and make flow adjustment if needed. Check that adequate water pressure is being maintained to the inlet and bull nozzles. Check operation of differential pressure measurement loop and clean taps as needed.	EM-PWB-BL09-ASHSYS-DC3340010 EM-PWB-BL09-FLUMES-SB3340975 EM-PWB-BL09-FLUMES-SB3341000 EM-PWB-BL09-FLUGAS	Weekly	Lead Operator & First Equipment Tender	Checklist with SOP	
		2. Dismantle and inspect scrubber supply, backup water supply, and recirculation pumps. Inspect inlet and bull nozzles. Water blast circulation lines and inspect valves. Clean scrubber drains and rotate if necessary (maint. item # 21947)	EM-PWB-BL09-FLUGAS	Annually	Mechanical Maintenance		
		3. Inspect automatic valves and repair as necessary. Repair motor starters as necessary. Inspect scrubber differential pressure transmitter. Calibrate stack temperature switch and transmitter. Calibrate recirculation pressure switches. (maint. Item #23811)	EM-PWB-BL09-FLUGAS	Annually	E&I Maintenance	16281	
		4. Check #2 and #3 scrubber flow meter calibration	EM-PWB-BL09-030602	Annually	E&I Maintenance	63735	
		5. Check #2 and #3 scrubber differential pressure transmitter calibrations	EM-PWB-BL09-330800	Annually	E&I Maintenance	63737	
		4. Inspect multiclone dust collector and ash handling equipment and conduct related repairs as necessary (maint. Item #24982)	EM-PWB-BL09-ASHSYS-DC3340010	Annually	Mechanical Maintenance	16281	
	#9 Boiler - Operating Load	1. Calibrate steam flow transmitter	EM-PWB-BL09-030115	Annual during outage	E&I Maintenance	63736	
	#9 Boiler - O2 Trim	1. Calibrate excess air O2 monitor	EM-PWB-BL09-030111	Annual during outage	E&I Maintenance	63741	
	#9 Boiler Wood Residue Surge Bin Cyclone	1. Inspect internal cyclone equipment for wear and make repairs as needed (maint item #21937)	EM-PWB-BL09-BARKFL-CY0340155	Annually	Mechanical Maintenance	16281	
	EM-PWB-BL09-BARKFL-CY0340155	2. Visible emissions check		Weekly during operation	Lead Operator & 2nd Assistant Operator	Checklist with SOP (same as the weekly walkdown)	
	#11 Boiler Multiclone and Electrostatic Precipitator EM-PWB-BL11-DRYASH-VA6844108 EM-PWB-BL11-PRECIP-PR6844250	1. Check that operating lights on the control panels indicate that the TR sets are on. Verify air conditioning/temperature in the TR control room is ok. Check that TR currents and voltages are in proper operating ranges. Walkdown rapper drives and check for apparent mechanical problems. Inspect TR sets for leaking coolant. Check that precipitator ash rotary valves, screw conveyors, and drag conveyors are operating properly. Check precipitator ash hoppers for possible pluggage. Inspect inlet filters for precipitator heater/blower fan. Check that the insulator compartment heater/blower units are functioning properly. Check multiclone dust collector rotary valves, sand classifiers, and ash conveyors for proper operation.		Weekly	Lead Operator & 2nd Assistant Operator	Checklist	
		2. Remove flyash buildup in all parts of precipitator. (maint. Item #9179)		Annually during outage	Maintenance	8628	

Area	Air Cleaning Equipment	Required Preventative Maintenance	Functional Location PM is written to	Frequency of Work	Who Performs the Work	Maintenance Plan Numbers/Recordkeeping	COMMENTS for certification
		3. Inspect and clean or replace bushing and insulators. Inspect and clean TR control sets. Check spacing between discharge electrode wires and collection plates. (maint. item #21883)		Annually during outage	E&I Maintenance	13351	
		4. Replace faulty elements and controls on heater/blower units. Replace all filters and fan belts on blower/heater units. Clean and inspect rapper drive control cabinets. Repair rappers if required. Adjust rapping frequencies/strategy for optimum performance if necessary. Replace gear oil for rapper drives. Inspect general integrity of precipitator shell and ductwork. (maint. item #21883)		Annually during outage	Mechanical Maintenance	13351	
		5. Inspect and repair all conveyors. Inspect multiclone dust collector and ash handling equipment and conduct related repairs as needed. (maint. Item #23812)		Annually during outage	Mechanical Maintenance	8628	
	#11 Boiler Operating Load	1. Calibrate steam flow transmitter (maint. Item 14144)	EM-PBW-BL11-68813	Annual during outage	E&I Maintenance	13351	
	#11 Boiler O2 Trim	1. Calibrate east, west, and center excess air O2 monitors	EM-PBW-BL11-680408	Annual during outage	E&I Maintenance	53281	
	#7 Boiler MACT Tune-up Requirements	1. Flame pattern inspection		Once every 5 years	Boilerhouse Management	Contact Boilerhouse Business Unit Manager to ensure this is completed	
		1. Inspect air-to-fuel ratio control system for proper function and calibration. Calibrate Excess O2 sensor		Once every 5 years	Boilerhouse Management	Contact Boilerhouse Business Unit Manager to ensure this is completed	
		1. Burner inspection - Boiler MACT		Once every 5 years	Boilerhouse Management	Contact Boilerhouse Business Unit Manager to ensure this is completed	
		1. Optimization of CO emissions 2. Measure CO and O2 levels before and after tune-up		Once every 5 years	Boilerhouse Management	Contact Boilerhouse Business Unit Manager to ensure this is completed	
	#9 Boiler MACT Tune-up Requirements	1. Flame pattern inspection		Once every 5 years	Boilerhouse Management	Contact Boilerhouse Business Unit Manager to ensure this is completed	
		1. Inspect air-to-fuel ratio control system for proper function and calibration.		Once every 5 years	Boilerhouse Management	Contact Boilerhouse Business Unit Manager to ensure this is completed	
Boilerhouse		1. Burner inspection - Boiler MACT		Once every 5 years	Boilerhouse Management	Contact Boilerhouse Business Unit Manager to ensure this is completed	
		1. Optimization of CO emissions 2. Measure CO and O2 levels before and after tune-up		Once every 5 years	Boilerhouse Management	Contact Boilerhouse Business Unit Manager to ensure this is completed	
	#8 Boiler MACT Tune-up Requirements	1. Flame pattern inspection		Once every 5 years	Boilerhouse Management	Contact Boilerhouse Business Unit Manager to ensure this is completed	
		1. Inspect air-to-fuel ratio control system for proper function and calibration. Calibrate Excess O2 sensor	EM-PWB-BL08-130135	Once every 5 years	Boilerhouse Management	Contact Boilerhouse Business Unit Manager to ensure this is completed	
		1. Burner inspection - Boiler MACT		Once every 5 years	Boilerhouse Management	Contact Boilerhouse Business Unit Manager to ensure this is completed	
		1. Optimization of CO emissions 2. Measure CO and O2 levels before and after tune-up		Once every 5 years	Boilerhouse Management	Contact Boilerhouse Business Unit Manager to ensure this is completed	
	#11 Boiler MACT Tune-up Requirements	1. Flame pattern inspection		Once every 5 years	Boilerhouse Management	Contact Boilerhouse Business Unit Manager to ensure this is completed	
		1. Inspect air-to-fuel ratio control system for proper function and calibration. Calibrate Excess O2 sensor		Once every 5 years	Boilerhouse Management	Contact Boilerhouse Business Unit Manager to ensure this is completed	
		1. Burner inspection - Boiler MACT		Once every 5 years	Boilerhouse Management	Contact Boilerhouse Business Unit Manager to ensure this is completed	
		1. Optimization of CO emissions 2. Measure CO and O2 levels before and after tune-up		Once every 5 years	Boilerhouse Management	Contact Boilerhouse Business Unit Manager to ensure this is completed	
	#11 Boiler, #1 (A) Coal Silo Baghouse	1. Inspect the bag filters and fan system and repair as necessary. (maint. Item #14003)	see below	Annually during outage	Maintenance	8628	
		2. Visible emissions check	EM-PWB-BL11-COALFL-FL7043690 #11 Boiler, #2 (B) Coal Silo Baghouse				

Area	Air Cleaning Equipment	Required Preventative Maintenance	Functional Location PM is written to	Frequency of Work	Who Performs the Work	Maintenance Plan Numbers/Recordkeeping	COMMENTS for certification
			EM-PWB-BL11-COALFL-FL7043720 #11 Boiler, #3 (C) Coal Silo Baghouse EM-PWB-BL11-COALFL-FL7043750 #11 Boiler, #2 Ash Silo Baghouse EM-PWB-BL11-DRYASH-FL6845960	Weekly during operation	Lead Operator & 2nd Assistant Operator	Checklist	
	#11 Boiler, #1 Ash Silo Pugmill	1. Inspect the ash mixers and rotary feeders while in operation		Weekly	Ash handlers	Checklist	
	#11 Boiler, #2 Ash Silo Pugmill	2.a. Inspect the boiler ash mixer (maint. Item #9145)	EM-PWB-BL11-DRYASH-MZ6845868	Annually during outage	Mechanical Maintenance	8628	
		2.b. Inspect the precip ash mixer (maint. Item #9149)	EM-PWB-BL11-DRYASH-MZ6845955				
		3. Inspect the rotary feeders (maint. Item # 21805)	EM-PWB-BL11-DRYASH			8628	
	#10 Recovery Furnace Electrostatic Precipitator	1. Replace resistors, fans, etc. Inspect and clean TR control cabinets. Clean and inspect SIR units. Clean and inspect penthouse HV wiring. (maint item #24052 for completion tracking of maint item #73185)	EM-CRB-BL10-PRECIP-PR5140010	Annually	E&I Maintenance	18065	
		2. Inspect and clean or replace bushings, bus support insulators. Check field alignment. Inspect ductwork.	EM-CRB-BL10-PRECIP-PR5140010	Annually	AirTek Field Service		
		3. Remove flyash buildup in all parts of precipitator. Inspect fan belts. Inspect and repair drag conveyors. (maint. Item # 17415)		Annually	Maintenance personnel, Supervisory personnel, service contractor	14110	
	EM-CRB-BL10-PRECIP-PR5140010	4. Check that the current limits on all TR control sets are in the normal range. Spot check noises made by rappers for uniformity of tapping noises and duration of cycle. Check that rapper pressure is greater than 90 psi and steady. Check that the air lines that feed compressed air to drive rappers are properly connected. Check that all bolts on the top end of rappers are securely fastened. Check that the filters for the shell heater fan are clean and change filters if necessary. Check that the fans for shell heaters and penthouse heaters are running and belts and motors functioning properly. Check that the gauge on the shell heater fan reads between the low and high preset values. Check that the air conditioning is on in the TR control room. Change the shell heater fan filters if necessary.		Weekly	First helper	Checklist	
	Smelt Dissolving Tank Scrubber	1. Water blast to remove scale and thoroughly clean scrubber interior. Inspect scrubber interior and make any necessary repairs. Inspect fan bearings and belts. (maint item #24051)	EM-CRB-BL10-FLUGAS-SB3340431	Annually	Maintenance	14110	
	EM-CRB-BL10-FLUMES-SB3340431	2. Inspect and make any necessary repairs to scrubber differential pressure transmitter. Calibrate differential pressure transmitter. Check the zero on the three Yokogawa Magmeter Flow Tubes on the SDT Scrubber (Fan flow, East duct flow, & West duct flow). The total flow (15-f0303.pe) is a calculation. (maint item #24052 - refers to L:\Local Initiatives\Area 7\E&I PM Spread Sheets\10 BOILER SPREADSHEETS)	EM-CRB-BL10-150316 EM-CRB-BL10-150303 EM-CRB-BL10-150304 EM-CRB-BL10-150305	Annually	E&I Maintenance	18065	
		3. Inspect weak wash supply pressures and make sure they are adjusted properly. Check the scrubber fan motor and belts. Check the scrubber for excessive vibration. Check the scrubber and ducts for leaks. Check that the scrubber differential pressure is in a normal range.		Weekly during operation	First helper	Checklist	

Area	Air Cleaning Equipment	Required Preventative Maintenance	Functional Location PM is written to	Frequency of Work	Who Performs the Work	Maintenance Plan Numbers/Recordkeeping	COMMENTS for certification
		4. Check that the Motor Status Alarm for the SDT Scrubber Fan is operating correctly.	EM-CRB-BL10-150161	Annually	Environmental Engineer	see comments	
Paper Machines and Coaters	#1 Coater, #1 Starch Silo Baghouse, EM-CP1-RMST-STRSTG-FL4341252 #1 Coater, #2 Starch Silo Baghouse, EM-CP1-RMST-STRSTG-FL4341282 #1 Coater, #1 and #2 Starch Day Bins Baghouse, EM-CP1-RMST-STRSTG-FL4341460 #1 Coater, #1 and #2 Starch Wet Out Tanks Baghouse, EM-CP1-RMST-WETOUT-FL4341550	1. Inspect bags at least annually for "soft to hand" condition and uniform tightness of clamps. Replace bags when necessary.	EM-CP1-RMST-STRSTG-FL4341252	Annually	Mechanical Maintenance	18188	
		2. Verify proper function of pressure/vacuum hatch	EM-CP1-RMST-STRSTG-FL4341252	Annually	Mechanical Maintenance	18188	
		3. Check level transmitter	EM-CP1-RMST-STRSTG-FL4341252	Annually	E & I Maintenance	18189	
		4. Visible emissions check		Weekly during operation	Material Handler	Checklist	
	#3 Paper Machine, #1 Starch Silo Baghouse	1. Inspect blowers on top of starch filters. Check bearing freeplay and blower clearance. Change filter bags when necessary, or at least once a year. Verify proper function of pressure/vacuum hatch.	EM-CP3-RMST-STRSTG-FL0842425	Annually	Maintenance	18013	
			EM-CP3-RMST-STRSTG-FL0842525			18014	
			EM-CP3-RMST-STRSTG-FL6642590			18015	
	EM-CP3-RMST-STRSTG-FL0842425	2. Check level transmitter	EM-CP3-RMST-080151	Annually	E&I Maintenance		
			EM-CP3-RMST-080153			17951	
	#3 Coater, #2 Starch Silo Baghouse		EM-CP3-RMST-080511			17952	
	EM-CP3-RMST-STRSTG-FL0842525 #3 Coater, #3 Starch (Cato) Silo Baghouse EM-CP3-RMST-STRSTG-FL6642590	3. Visible emissions check		Weekly during operation	Material Handler	Checklist	
	#4 Coater, #1 Starch Silo Baghouse	1. Inspect blowers on top of starch filters. Check bearing freeplay and blower clearance. Change filter bags when necessary, or at least once a year. Verify proper function of pressure/vacuum hatch.		Annually	Mechanical Maintenance	17959	
						17996	
	EM-CP4-RMST-STRSTG-FL6645694	2. Check level transmitter	EM-CP4-RMCS-661506 EM-CP4-RMCS-661507	Annually	E&I Maintenance	53453	
	#4 Coater, #2 Starch Silo Baghouse		EM-CP4-RMCS-661507			53454	
	EM-CP4-RMST-STRSTG-FL6645762	3. Visible emissions check		Weekly during operation	Material Handler	Checklist	
	#4 Paper Trim Cyclone	1. Inspect internal screen and fan belt, rotor, equipment for wear	EM-A04-MISC-C04TRM-CY6543392	Annually	Mechanical Maintenance	26981	
	#4 Paper Trim Guillotine Cyclone		EM-A04-MISC-C04TRM-CY6543394			26982	
	#4 Paper Trim Cyclone	2. Visible check of proper operation	EM-A04-MISC-C04TRM-CY6543392	Weekly during operation	Slab pulper operator	Checklist	
	#4 Paper Trim Guillotine Cyclone		EM-A04-MISC-C04TRM-CY6543394				
Maintenance Paint Spray Booth	Dry Exhaust Filters	1. Replace the exhaust filters	EM-A05-MSHP-PNTSHP	As needed	Mechanical Maintenance	18258	
RICE MACT Units	1) Lime Kiln Emergency Drive Motor	1. Change oil and filter every 500 hours, or annually, whichever is first 2. Inspect spark plugs, if applicable every 1000 hours, or annually, whichever is first 3. Inspect air cleaner every 1000 hours, or annually, whichever is first 4. Inspect all hoses and belts every 500 hours, or annually, whichever is first, and replace as necessary	1) EM-CRC-LKN1-KILNSY-IC2940295	Annually	Heavy Equipment Truck Shop	61189	
	2) E1 Emergency Lift Pump		2) EM-S01-AUXE-EFFLFT-MZ3540863			61190	
	3) Emergency Fire Water Pump by Water Treatment Building		3) EM-UTL-FSYS-FIREPU-IC0141251,			61251	
	4) Emergency Fire Water Pump by Admin Building		4) EM-UTL-FSYS-FIREPU-IC0141645			61252	
	5) EOC Back-up Generator by Admin Building		5) EM-A01-AUXE-GENERA-GE6749990			61253	
	6) Turbine Turning Gear Back-up generator		6) EM-UTL-TG08-MISCEQ-GE1640025			61424	

Boiler MACT Site-Specific Monitoring Plan

BOILER MACT SITE-SPECIFIC MONITORING PLAN

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1. PURPOSE

Verso Escanaba, LLC (VE), Escanaba Mill (Escanaba or Mill), is subject to the National Emission Standards for Hazardous Air Pollutants (NESHAP) for Major Sources: Industrial, Commercial, and Institutional Boilers and Process Heaters (40 CFR Part 63, Subpart DDDDD). This regulation is commonly referred to as the Boiler MACT. 40 CFR §63.7505(d) requires the development and implementation of a Site-Specific Monitoring Plan (SSMP) if compliance with an applicable emissions limit is demonstrated through performance testing or a Continuous Emissions Monitoring System (CEMS), and compliance with an applicable operating limit is demonstrated through the use of a Continuous Parametric Monitoring Systems (CPMS) or a Continuous Opacity Monitoring System (COMS). CEMS, CPMS, and COMS are collectively referred to as Continuous Monitoring Systems (CMS). An SSMP must be prepared according to the requirements in 40 CFR §§63.7505(d)(1) through (4), as well as certain requirements in 40 CFR §§63.8(c) and (d), and 40 CFR §§63.10(c) and (e), for the use of a CMS. This requirement also applies if VE petitions the U.S. Environmental Protection Agency (U.S. EPA) in accordance with 40 CFR §63.8(f) for alternative monitoring system quality assurance (QA) and quality control (QC) procedures in place of those specified in 40 CFR §63.7505(d).

VE must submit this SSMP, if requested, at least 60 days prior to conducting the initial performance evaluation of its CMS. Otherwise, VE must maintain this SSMP on site and make it available upon request for inspection.

As specified in 40 CFR §63.7505(d)(1), the requirement to develop, and submit upon request, an SSMP does not apply to affected sources with **existing** CEMS or COMS operated according to the performance specifications under Appendix B to 40 CFR Part 60 **and** that meet the requirements of 40 CFR §63.7525. VE's COMS meets the criteria in 40 CFR §63.7505(d)(1) and VE operates and maintains its COMS in accordance with its existing QA/QC Plan. Furthermore, to date, U.S. EPA has not promulgated performance specifications for CPMS (i.e., pressure monitors, scrubber flow meters, or steam flow meters) of the type used for Subpart DDDDD compliance. Therefore, VE has relied on manufacturer's specifications, Mill standard operating procedures, standard industry practices, and U.S. EPA guidance[1] for the purposes of this SSMP.

This SSMP was developed in accordance with the version of Subpart DDDDD in effect as of the date of the document. Revisions to Subpart DDDDD in the future may require an update to this plan. Revisions of this plan are documented in Section 11 of this document.

1.1 MILL DESCRIPTION

VE is a bleached kraft pulp and paper mill that produces coated paper as its primary product. VE is located just north and adjacent to the town of Escanaba, in Delta County, Michigan. The Escanaba Mill includes the following general process operations: woodyard, refiner mechanical pulp (RMP) mill, kraft pulp mill, chemical recovery, recausticizing system, bleach plant, boilerhouse, and coated paper manufacturing operations.

The Mill uses four (4) power boilers to produce steam to drive turbines for electricity generation for internal Mill use, and to provide steam and/or heat for the pulping and paper making processes.

1.2 OVERVIEW OF BOILER MACT AFFECTED UNITS

VE operates the following four (4) boilers that are affected emissions units under Boiler MACT:

1. Boiler No. 7
2. Boiler No. 8
3. Boiler No. 9
4. Boiler No. 11

The following subsections describe the affected emissions units.

[1] http://www.epa.gov/ttnatw01/pulp/dps53101.pdf.

1.2.1 Boiler No. 7

Boiler No. 7 was installed in 1947 and has a nominal rated heat input capacity of 154 million British thermal units per hour (MMBtu/hr). Boiler No. 7 typically combusts natural gas, but is also permitted to combust fuel oil. Boiler No. 7 is equipped with an oxygen (O_2) trim system to maintain excess air at the desired level in the boiler.

Boiler No. 7 is an existing source with respect to Boiler MACT, and it meets the criteria of the ***unit designed to burn gas 1*** subcategory. As such, Boiler No. 7 is not subject to emissions limits or operating limits under Boiler MACT and is not addressed further in this SSMP.

1.2.2 Boiler No. 8

Boiler No. 8 was installed in 1968 and has a nominal rated heat input capacity of 594 MMBtu/hr. Boiler No. 8 typically combusts natural gas, but is also permitted to combust fuel oil. Boiler No. 8 is equipped with an induced flue-gas recirculation system to control nitrogen oxides (NO_X) emissions during the ozone control season and an O_2 trim system to maintain excess air at the desired levels in the boiler.

Boiler No. 8 is an existing source with respect to Boiler MACT, and it meets the criteria of the ***unit designed to burn gas 1*** subcategory. As such, Boiler No. 8 is not subject to emissions limits or operating limits under Boiler MACT and is not addressed further in this SSMP.

1.2.3 Boiler No. 9

Boiler No. 9 was installed in 1972 and has a nominal rated input capacity of 360 MMBtu/hr. Boiler No. 9 typically burns biomass (wood fuel) and natural gas. The boiler is also permitted to burn paper cores. Boiler No. 9 is equipped with a multi-clone and two (2) wet scrubbers to control emissions of particulate matter (PM) when combusting solid fuel. Boiler No. 9 includes an overfire air (OFA) system and an O_2 trim system to maintain excess air at the desired levels in the boiler.

Boiler No. 9 is an existing source with respect to Boiler MACT, and it meets the criteria of the ***unit in all categories designed to burn solid fuel*** subcategory and the ***hybrid suspension/grate burners designed to burn wet biomass/bio-based solid*** subcategory.

1.2.4 Boiler No. 11

Boiler No. 11 was installed in 1981 and has a nominal rated input capacity of 1,040 MMBtu/hr. Boiler No. 11 typically burns biomass [wood fuel and wastewater treatment plant (WWTP) residuals], coal, natural gas, and tire derived fuel (TDF). The boiler is also permitted to burn engineered fuel pellets. Boiler No. 11 is equipped with a multi-clone and a dry electrostatic precipitator (ESP), as well as a COMS. Boiler No. 11 includes an OFA system and an O_2 trim system to maintain excess air at the desired levels in the boiler.

Boiler No. 11 is an existing source with respect to Boiler MACT, and it meets the criteria of the ***unit in all categories designed to burn solid fuel*** subcategory and the ***hybrid suspension/grate burners designed to burn wet biomass/bio-based solid*** subcategory.

1.3 SSMP DESCRIPTION

The purpose of this SSMP is to address the installation, performance, operation and maintenance, quality control, and recordkeeping and reporting procedures related to the Mill's CMS. In addition to the regulatory requirements, this document also identifies the roles and responsibilities for VE personnel related to implementing this SSMP, and documents the periodic reviews, updates, and other revisions to the SSMP. In accordance with 40 CFR §63.7505(d)(1), VE has developed this SSMP which addresses the design, data collection, and the QA/QC procedures for each CMS required by Boiler MACT. Specific regulatory requirements and their location in the SSMP are provided in Table 1-1.

Table 1-1
Location of Boiler MACT SSMP Requirements within This Document

SSMP Requirements and Items to Address	Regulatory Citation (40 CFR)	Section in SSMP
Initial and subsequent calibrations	§63.8(d)(2)(i)	66-1
Determination and adjustment of calibration drift	§63.8(d)(2)(ii)	6
Preventative maintenance, including spare parts inventory	§63.8(d)(2)(iii)	6-18
Data recording, calculations, and reporting	§63.8(d)(2)(iv)	6
Accuracy audit procedures, including sampling and analysis methods	§63.8(d)(2)(v)	6
Program for corrective action for malfunctioning CMS	§63.8(d)(2)(vi)	6-129
Installation of CMS sampling probe	§63.7505(d)(1)(i)	**Error! Bookmark not defined.**4
Performance and equipment specifications for sample interface, pollutant concentration, or parametric signal analyzer	§63.7505(d)(1)(ii)	5-85
Performance evaluation procedures and acceptance criteria	§63.7505(d)(1)(iii) §63.8(e)	6
Ongoing operation and maintenance	§63.7505(d)(2)(i)	**Error! Bookmark not defined.**8
Keep parts for routine repair of CMS readily available	§63.8(c)(1)(ii)	8
CMS must be installed, operational, and data verified	§63.8(c)(3)	4 & 6
One (1) cycle of operation (sampling, analyzing, and data recording) must be completed each successive 15-minute period for each CEMS	§63.8(c)(4)	6
One (1) cycle of sampling and analyzing for each successive 10-second period and one (1) cycle of data recording for each successive six (6) minute period for each COMS	§63.8(c)(4)(i)	6
Reduce all data to six (6)-minute averages for each COMS	§63.8(g)(2)	6
Data QA procedures	§63.7505(d)(2)(ii)	6
Recordkeeping and reporting procedures	§63.7505(d)(2)(iii)	9-110
Performance evaluation of each CMS	§63.7505(d)(3)	6
Each CMS be operated and maintained according to SSMP	§63.7505(d)(4)	**Error! Bookmark not defined.**1

2. RESPONSIBILITIES

Table 2-1 identifies the designated responsible person (by title) for the elements and requirements within VE's SSMP.

Table 2-1
List of Responsibilities

Requirement	Responsible Person(s)	Section in SSMP
Installation requirements	Electrical Engineer/Maintenance E&I	4
Performance and equipment specifications for the sample interface, the parametric signal analyzer, and the data collection and reduction system	Electrical Engineer/Maintenance E&I/Process Control/IT	5
CMS calibrations	Maintenance E&I	6
CMS calibration recordkeeping	Maintenance E&I	10
CMS spare parts	Maintenance E&I	8
Determining CMS "out-of-control" periods	Environmental	6
Recordkeeping for CMS "out-of-control" periods and CMS "down time"	Environmental	10
CMS preventative maintenance	Maintenance	8
CMS preventative maintenance recordkeeping	Maintenance	10
CMS data recording and calculations	Environmental	7
Corrective actions for CMS	Maintenance	9
CMS monitoring data recordkeeping	Environmental	10
CMS reporting (per the SSMP)	Environmental	10

3. DEFINITIONS

The following definitions from 40 CFR §§63.2 and 63.7575 are provided for reference:

- *30-day rolling average* means the arithmetic mean of the previous 720 hours of valid operating data. Valid data exclude hours during startup and shutdown, data collected during periods when the monitoring system is out of control as specified in your SSMP, while conducting repairs associated with periods when the monitoring system is out of control, or while conducting required monitoring system quality assurance or quality control activities, and periods when this unit is not operating. The 720 hours should be consecutive, but not necessarily continuous if operations were intermittent.
- *Boiler* means an enclosed device using controlled flame combustion and having the primary purpose of recovering thermal energy in the form of steam or hot water. Controlled flame combustion refers to a steady-state, or near steady-state, process wherein fuel and/or oxidizer feed rates are controlled. A device combusting solid waste, as defined in 40 CFR §241.3 of this chapter, is not a boiler unless the device is exempt from the definition of a solid waste incineration unit as provided in section 129(g)(1) of the Clean Air Act. Waste heat boilers are excluded from this definition.
- *CEMS* means the total equipment that may be required to meet the data acquisition and availability requirements of this part, used to sample, condition (if applicable), analyze, and provide a record of emissions.
- *CMS* is a comprehensive term that may include, but is not limited to, CEMS, COMS, CPMS, or other manual or automatic monitoring that is used for demonstrating compliance with an applicable regulation on a continuous basis as defined by the regulation.
- *COMS* means a continuous monitoring system that measures the opacity of emissions.
- *CPMS* means the total equipment that may be required to meet the data acquisition and availability requirements of this part, used to sample, condition (if applicable), analyze, and provide a record of process or control system parameters.

- *Corrective actions* means an activity performed in response to failed quality assurance activity by a CEMS and/or CMS.
- *Daily block average* means the arithmetic mean of all valid emissions concentrations or parameter levels recorded when a unit is operating measured over the 24-hour period from 12 a.m. (midnight) to 12 a.m. (midnight), except for periods of startup and shutdown or downtime.
- *Deviation:*
  - (i) Deviation means any instance in which an affected source subject to this subpart, or an owner or operator of such a source:
    - (1) Fails to meet any applicable requirement or obligation established by this subpart including, but not limited to, any emissions limit, operating limit, or work practice standard; or
    - (2) Fails to meet any term or condition that is adopted to implement an applicable requirement in this subpart and that is included in the operating permit for any affected source required to obtain such a permit.
  - (ii) A deviation is not always a violation.
- *Excess emissions* occur if a valid quality assured opacity reading exceeds the numerical emissions limit pursuant to 40 CFR Part 63, Subpart DDDDD consistent with the averaging period or if valid quality assured data from a performance evaluation result in emissions above the specific numerical emissions limit for a pollutant (PM, CO, HCl, and/or Hg) pursuant to 40 CFR Part 63, Subpart DDDDD consistent with the averaging period by using a specified U.S. EPA reference method.
- *Exceedances* occur when valid quality assured parametric monitor values exceed limits pursuant to 40 CFR Part 63, Subpart DDDDD consistent with the averaging period.
- *Hourly average* means the arithmetic average of at least four (4) CMS data values representing the four (4) 15-minute periods in an hour, or at least two (2) 15-minute data values during an hour when CMS calibration, quality assurance, or maintenance activities are being performed.
- *Hybrid suspension grate boiler* means a boiler designed with air distributors to spread the fuel material over the entire width and depth of the boiler combustion zone. The biomass

fuel combusted in these units exceeds a moisture content of 40% on an as-fired annual heat input basis as demonstrated by monthly fuel analysis. The drying and much of the combustion of the fuel takes place in suspension, and the combustion is completed on the grate or floor of the boiler. Fluidized bed, dutch oven, and pile burner designs are not part of the hybrid suspension grate boiler design category.

- *Malfunction* means any sudden, infrequent, and not reasonably preventable failure of air pollution control and monitoring equipment, process equipment, or a process to operate in a normal or usual manner which causes, or has the potential to cause, the emissions limitations in an applicable standard to be exceeded. Failures that are caused in part by poor maintenance or careless operation are not malfunctions.
- *Oxygen analyzer system* means all equipment required to determine the oxygen content of a gas stream and used to monitor oxygen in the boiler or process heater flue gas, boiler or process heater, firebox, or other appropriate locations. This definition includes oxygen trim systems. The source owner or operator must install, calibrate, maintain, and operate the oxygen analyzer system in accordance with the manufacturer's recommendations.
- *Oxygen trim system* means a system of monitors that is used to maintain excess air at the desired level in a combustion device. A typical system consists of a flue gas oxygen and/or carbon monoxide CO monitor that automatically provides a feedback signal to the combustion air controller.
- *Performance evaluation* means the conduct of relative accuracy testing, calibration error testing, and other measurements used in validating the CMS data.
- *Performance test* means the collection of data resulting from the execution of a test method [usually three (3) emission test runs] used to demonstrate compliance with a relevant emissions standard as specified in the performance test section of the relevant standard.
- *Shutdown* means the period in which cessation of operation of a boiler or process heater is initiated for any purpose. Shutdown begins when the boiler or process heater no longer supplies useful thermal energy (such as heat or steam) for heating, cooling, or process purposes and/or generates electricity or when no fuel is being fed to the boiler or process heater, whichever is earlier. Shutdown ends when the boiler or process heater no longer

supplies useful thermal energy (such as steam or heat) for heating, cooling, or process purposes and/or generates electricity, and no fuel is being combusted in the boiler or process heater. *Solid fossil fuel* includes, but is not limited to, coal, coke, petroleum coke, and tire derived fuel.

- *Solid fuel* means any solid fossil fuel or biomass or bio-based solid fuel.
- *Startup (Definition 1)* means either the first-ever firing of fuel in a boiler or process heater for the purpose of supplying useful thermal energy for heating and/or producing electricity, or for any other purpose, or thee firing of fuel in a boiler after a shutdown event for any purpose. Startup ends when any of the useful thermal energy from the boiler or process heater is supplied for heating, and/or producing electricity, or for any other purpose.[2]
- *Unit designed to burn biomass/bio-based solid category* includes any boiler or process heater that burns at least 10% biomass or bio-based solids on an annual heat input basis in combination with solid fossil fuels, liquid fuels, or gaseous fuels.
- *Unit designed to burn gas 1 subcategory* includes any boiler or process heater that burns only natural gas, refinery gas, and/or other gas 1 fuels. Gaseous fuel boilers and process heaters that burn liquid fuel for periodic testing of liquid fuel, maintenance, or operator training, not to exceed a combined total of 48 hours during any calendar year, are included in this definition. Gaseous fuel boilers and process heaters that burn liquid fuel during periods of gas curtailment or gas supply interruptions of any duration are also included in this definition.
- *Unit designed to burn solid fuel subcategory* means any boiler or process heater that burns only solid fuels or at least 10% solid fuel on an annual heat input basis in combination with liquid fuels or gaseous fuels.

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[2] VE has chosen to use Definition 1 of startup. Definition 2 – The period in which operation of a boiler is initiated for any purpose. Startup begins with either the first-ever firing of fuel in a boiler or process heater for the purposes of supplying useful thermal energy (such as steam or heat) for heating, cooling or process purposes, or producing electricity, or the firing of fuel in a boiler or process heater for any purpose after a shutdown event. Startup ends four hours after when the boiler or process heater supplies useful thermal energy (such as heat or steam) for heating, cooling, or process purposes, or generates electricity, whichever is earlier.

4. AFFECTED SOURCES AND CMS

4.1 BOILER NO. 9

Table 4-1 summarizes the applicable Boiler MACT emissions limits and operating parameters associated with Boiler No. 9.

Table 4-1
Boiler No. 9 Summary of Applicable Emissions Limits and Operating Parameters

Pollutant	Emissions Limit[a]	Control Device	Operating Parameter
Filterable PM	0.44 lb/MMBtu heat input	Multi-Cyclone, Wet Scrubbers	Scrubber liquid flow and differential pressure
Carbon Monoxide (CO)	3500 ppmvd @ 3% O_2[b]	N/A	O_2 trim system set point
Mercury (Hg)	5.7E-06 lb/MMBtu heat input	Multi-Cyclone, Wet Scrubbers	Mercury (Hg) input loading to boiler
Hydrogen Chloride (HCl)	2.2E-02 lb/MMBtu heat input	N/A	Hydrogen chloride (HCl) input loading to boiler
All	N/A	N/A	Operating Load (as steam flow rate)

(a) Emissions limits are for boilers under the subcategory of ***hybrid suspension/grate burners designed to burn wet biomass/bio-based solids.***
(b) Parts per million by volume, dry basis, corrected to 3% O_2 concentration on a three (3)-run average.

The applicable operating limits and compliance methodology for each parameter are summarized in Table 4-2. Note that the operating limits in Table 4-2 do not apply when Boiler No. 9 is combusting solely natural gas. While burning only natural gas, Boiler No. 9 meets the criteria of the ***unit designed to burn gas 1*** subcategory. As such, it is not subject to the operating limits under Boiler MACT (see Appendix C for Alternative Monitoring Approval). Operating limits are set through initial performance testing and can be modified based on subsequent testing.

Table 4-2
Boiler No. 9 Summary of Operating Limits

Parameter	Compliance Methodology[a][b]	Operating Limit[c]
O_2 Content[d]	Conduct initial and annual performance testing for CO. Operate the O_2 trim system set no lower than the lowest hourly average O_2 concentration measured during the most recent CO performance test.	At or above the set-point established during the most recent performance test
Differential Pressure	Conduct initial and annual performance testing for filterable PM. Maintain the 30-day rolling differential pressure at or above the value corresponding to the lowest one (1)-hour average pressure drop measured during the most recent performance test.	Not to exceed the level established during the most recent performance test
Scrubber Flow	Conduct initial and annual performance testing for filterable PM. Maintain the 30-day rolling average liquid flow rate at or above the lowest one (1)-hour average liquid flow rate measured during the most recent performance test.	Not to exceed the level established during the most recent performance test
Operating Load	Conduct initial and annual performance testing for filterable PM, CO, Hg, and HCl. Maintain the operating load such that the 30-day rolling average steam flow rate does not exceed 110% of the highest hourly average operating load recorded during the most recent performance test.	Not to exceed the level established during the most recent performance test

(a) Per Boiler MACT, if your performance tests for a given pollutant for at least two (2) consecutive years show that your emissions are at or below 75% of the emissions limit for the pollutant, and if there are no changes in the operation of the individual boiler or air pollution control equipment that could increase emissions, performance test frequency for the pollutant may be decreased to once every three (3) years.
(b) As described in the Alternative Monitoring Approval located at Appendix C, operating limits do not apply when Boiler No. 9 is combusting natural gas only.
(c) The most recent performance tests can be found at the location referenced in Appendix A.
(d) Boiler MACT does not specifically address O_2 trim system range requirements. VE will assign the set point based on performance testing.

Table 4-3 summarizes the monitoring equipment used by Boiler No. 9 covered by this SSMP.

Table 4-3
Boiler No. 9 Summary of Boiler MACT CMS

Equipment	Location	Manufacturer	Model	Measurement	Data Collection Method
O_2 Sensor[(a)]	East side of Boiler No. 9 – Column K-8.9	Rosemount	3000/3008 probe	% O_2	Distributive Control System (DCS) Output to PI and VIM
#2 Scrubber dP Transducer[(b)]	East side of #2 scrubber - monitoring at inlet and outlet of scrubber	Rosemount	1151HP4S22	Inches water column (WC)	DCS Output to VIM
#3 Scrubber dP Transducer[(b)]	East side of #3 scrubber - monitoring at inlet and outlet of scrubber	Rosemount	1151HP4S22	Inches WC	DCS Output to VIM
North Scrubber Flow Meter	Between #1 and #2 stacks at pump discharge	Yokogawa	AE215MG-AA1-PSA-AIDH/BR/HA	Gallons per minute (GPM)	DCS Output to VIM
South Scrubber Flow Meter	Between #2 and #3 stacks at pump discharge	Yokogawa	AXF150CE1A L1LCA1121BF F1	GPM	DCS Output to VIM
Steam Flow Meter	High pressure steam header inlet, 5th floor, NW corner	Rosemount	MDL3051S1C D3A3F12A1A B3D2E5L4M5	KPPH	DCS Output to VIM

(a) O_2 set point is monitored on a minute basis. The set point value is transferred to VIM.
(b) Boiler No. 9 is followed by two (2) parallel scrubbers each with their own stack. Pressure taps are located at the inlet and outlet of each scrubber. There is one (1) dP transducer for each scrubber connected to the inlet and outlet taps.

4.1.1 Boiler No. 9 Monitoring Equipment

4.1.1.1 Flow Meters

Boiler No. 9 is equipped with two (2) wet scrubbers and is complying with the PM standard using performance testing. Therefore, the scrubbers are required to have liquid flow meters as a CMS for the indication of the proper operation of the control devices. The flow meters were installed in accordance with manufacturer specifications and 40 CFR §§63.7525(e)(1) and (3) such that the flow meters are positions that minimize swirling or abnormal velocity distributions due to upstream or downstream disturbances and provide representative flow measurements.

4.1.1.2 Scrubber Differential Pressure Sensors

Boiler No. 9 is equipped with two (2) wet scrubbers and is complying with the PM standard using performance testing. Therefore, the unit is required to have readings of scrubber differential pressure as a CMS for the indication of the proper operation of the control device. Differential pressure transducers are mounted with pressure taps on the high and low pressure side of each scrubber. The pressure transducers were installed in accordance with manufacturer specifications and 40 CFR §§63.7525(f)(1) and (2) such that the pressure sensors are in positions that minimize pulsating pressure, vibration, internal and external corrosion, and provide representative measurements of the pressure. The transducers were mounted solidly to prevent tilting, as a shift in the physical transducer could cause a zero shift in the output. The transducers were also positioned close to the process to achieve best accuracy.

4.1.1.3 O_2 Sensor

Boiler No. 9 is complying with CO standard using performance testing. To demonstrate continuous, proper operation of the boiler, an O_2 trim system is in place. An O_2 sensor provides feedback signal to the fuel feed system and boiler air flow. Using a DCS controller, O_2 is controlled by adjusting fuel feed rates and air flow to maintain O_2 at the established O_2 set point control level. The minimum set point is the lowest hourly average O_2 concentration measured during the most recent performance test. Note that there are inherent operating situations which may require the oxygen trim control system to be operated in the manual mode to ensure operational safety and boiler stability. Examples of these operating situations include startup and shutdown, oxygen analyzer calibration, and combustion control system adjustments. These periods of manual operation are of limited duration and will not be considered as compliance deviations. The O_2 sensor was installed in accordance with manufacturer specifications and 40 CFR §63.7525 such that it is in a location which provides a representative measurement of boiler O_2. The sensor is located between the economizer outlet and the dust collector inlet.

4.1.1.4 Boiler Steam Flow

Boiler No. 9 is equipped with a steam flow meter and is complying with the applicable emissions limits using performance testing. To demonstrate continuous compliance of the boiler with the operating load limit, a steam flow meter is in place. The operating load limit is established as 110% of the highest hourly average operating load measured during the most recent performance test. The steam flow meter was installed in accordance with manufacturer specifications in a location on the main steam line exiting the boiler that provides a representative measurement of steam flow from the boiler.

4.2 BOILER NO. 11

Table 4-4 summarizes the applicable Boiler MACT emissions limits and operating parameters associated with Boiler No. 11.

Table 4-4
Boiler No. 11 Summary of Applicable Emissions Limits and Operating Parameter

Pollutant	Emissions Limit	Control Device	Operating Parameter
Filterable PM	0.44 lb/MMBtu heat input	Multi-Cyclone, Dry ESP	Opacity
CO	3500 ppmvd @ 3% O_2[(a),(b)]	N/A	O_2 Trim System Set point
Hg	5.7E-06 lb/MMBtu heat input	Multi-Cyclone, Dry ESP	Hg input loading to boiler
HCl	2.2E-02 lb/MMBtu heat input	N/A	HCl input loading to boiler
All	N/A	N/A	Operating Load (as steam flow)

(a) Emissions limits for filterable PM and CO are for boilers under the subcategory of ***hybrid suspension/grate burners designed to burn wet biomass/bio-based solids.***
(b) Parts per million by volume, dry basis, corrected to 3% O_2 concentration.

The applicable operating limits and compliance methodology for each parameter are summarized below in Table 4-5. Operating limits are set through initial performance testing and can be modified based on subsequent testing.

Table 4-5
Boiler No. 11 Summary of Operating Limits

Parameter	Compliance Methodology[(a)]	Operating Limit[(b)]
Opacity	Conduct initial and annual performance testing for filterable PM. Maintain opacity to less than or equal to 10% (daily block average)	≤10%
O_2 Content[(c)]	Conduct initial and annual performance testing for CO. Operate the O_2 trim system set no lower than the lowest hourly average O_2 concentration measured during the most recent CO performance test.	At or above the set point established during the most recent performance test
Operating Load	Conduct initial and annual performance testing for filterable PM, CO, Hg, and HCl. Maintain the operating load such that the 30-day rolling average steam flow rate does not exceed 110% of the highest hourly average operating load recorded during the most recent performance test.	Not to exceed the level established during the most recent performance test

(a) Per Boiler MACT, if your performance tests for a given pollutant for at least two (2) consecutive years show that your emissions are at or below 75% of the emissions limit for the pollutant, and if there are no changes in the operation of the individual boiler or air pollution control equipment that could increase emissions, performance test frequency for the pollutant may be decreased to once every three (3) years.
(b) The most recent performance tests can be found in at the location referenced in Appendix A.
(c) Boiler MACT does not specifically address O_2 trim system range requirements. VE will assign the set point based on performance testing.

Table 4-6 summarizes the monitoring equipment used by Boiler No. 11 covered by this SSMP.

Table 4-6
Boiler No. 11 Summary of Boiler MACT CMS

Equipment	Location	Manufacturer	Model	Measurement	Data Collection Method
COMS	Precipitator Outlet Duct	Sick Optics	OMD41	% Opacity	PLC Output to VIM
O_2 Sensor[(a)]	Middle – Above Boiler No. 11 Access Platform	Rosemount	3000/3008 probe	% O_2	DCS Output to PI and VIM
O_2 Sensor[(a)]	East – Above Boiler No. 11 Access Platform	Yokogawa	ZR22G200SC ETQEA	% O_2	DCS Output to PI and VIM
O_2 Sensor[(a)]	West – Above Boiler No. 11 Access Platform	Yokogawa	ZR22G200SC ETQEA	% O_2	DCS Output to PI and VIM
Steam Flow Meter	High presser header inlet, 6th floor, N Wall	Rosemount	MDL3051S1C D3A3F12A1A B3D2E5L4M5	Kilo-pounds per hour (KPPH)	DCS Output to VIM

(a) O_2 set point is monitored on a minute basis. The set point value is transferred to VIM.

4.2.1 Boiler No. 11 Monitoring Equipment

4.2.1.1 O_2 Sensors

Boiler No. 11 is complying with the CO emissions limit using performance testing. To demonstrate continuous, proper operation of the boiler, an O_2 trim system is in place. Readings from three (3) O_2 sensors are averaged to provide a combined feedback signal to the combustion air flow. Using a DCS controller, O_2 is controlled by adjusting air flow to maintain the established O_2 set point control level. The minimum set point is the lowest hourly average O_2 concentration measured during the most recent performance test. Note that there are inherent operating situations which may require the oxygen trim control system to be operated in the manual mode to ensure operational safety and boiler stability. Examples of these operating situations include startup and shutdown, oxygen analyzer calibration, and combustion control system adjustments. These periods manual operation are of limited duration and will not be considered as compliance deviations. The O_2 sensors were installed in accordance with manufacturer specifications and 40 CFR §63.7525 such that they are in locations which provide a representative measurement of boiler O_2. Three (3) sensors are located across the boiler between the generating section outlet and the economizer inlet.

4.2.1.2 Boiler Steam Flow

Boiler No. 11 is equipped with a steam flow meter and is complying with the emissions limits using performance testing. To demonstrate continuous compliance of the boiler with the operating load limit, a steam flow meter is in place. The operating load limit is established as 110% of the highest hourly average operating load measured during the most recent performance test. The steam flow meter was installed in accordance with manufacturer's specifications in a location on the main steam line exiting the boiler that provides a representative measurement of steam flow from the boiler.

4.2.1.3 Opacity

Boiler No 11 is complying with the PM emissions limit through performance testing. To demonstrate continuous compliance, a COMS is in place. The COMS is installed, operated, and maintained according to Performance Specification 1 at Appendix B of 40 CFR Part 60 and 40 CFR §63.7525. Continuous compliance is demonstrated by maintaining the daily block average opacity at or below 10%.

5. PERFORMANCE AND EQUIPMENT SPECIFICATIONS

Pursuant to 40 CFR §63.7505(d)(1)(ii), VE must address performance and equipment specifications for the sample interface, the pollutant concentration or parametric signal analyzer, and the data collection and reduction systems in the SSMP.

5.1 BOILER NO. 9 PERFORMANCE AND EQUIPMENT SPECIFICATIONS

Performance and equipment specifications applicable to the CMS monitoring equipment for Boiler No. 9 are outlined in Table 5-1.

Table 5-1
Boiler No. 9 Performance and Equipment Specifications

Equipment	Type	Sample Interface	Manufacturer Specified Accuracy	Parametric Signal Analyzer/Monitor Range/Output	Data Collection and Reduction Systems
O_2 Meter	Rosemount 3000/3008 Probe	Zirconia electrochemical cell positioned in the boiler	0.1% of O_2 or 3% of reading (whichever is greater)	Calibrated range: 0 - 10% O_2 4-20 mA (max range 25% O_2)	Data is collected in a DCS system. VIM and PI software are used to reduce and manage the data from the DCS system.
#2 Scrubber dP Transducer	Rosemount 1151HP4S22	Pressure taps on scrubber inlet and outlet	±0.25% of calibrated range	Calibrated range: 0-20" H_2O 4-20 mA (max range 150" H_2O)	Data is collected in a DCS system. VIM software is used to reduce and manage the data from the DCS system.
#3 Scrubber dP Transducer	Rosemount 1151HP4S22	Pressure taps on scrubber inlet and outlet	±0.25% of calibrated range	Calibrated range: 0-20 "H_2O/ 4-20 mA (max range 150" H_2O)	Data is collected in a DCS system. VIM software is used to reduce and manage the data from the DCS system.
North Scrubber Flow Meter	Yokogawa AA1-PSA-AIDH/BR/HAL	Magnetic flow meter on water recirculation line from scrubber	±0.5% of rate	Calibrated Range: 0-2,500 GPM/4-20 mA (max range 2,891 GPM)	Data is collected in a DCS system. VIM software is used to reduce and manage the data from the DCS system.
South Scrubber Flow Meter	Yokogawa AXF150CE1AL1LCA1121BFF1	Magnetic flow meter on water recirculation line from scrubber	±0.35% of rate	Calibrated range: 0-2,500 GPM/4-20 mA (Max range 2,800 GPM)	Data is collected in a DCS system. VIM software is used to reduce and manage the data from the DCS system.
Steam Flow Meter	Rosemount MDL3051S1CD3A3F12A1AB3D2E5L4M5	Coplanar differential pressure in steam line to distribution header	0.025% of span	0-250" H_2O, 4-20 mA, 0-350 KPPH	Data is collected in a DCS system. VIM software is used to reduce and manage the data from the DCS system.

5.2 BOILER NO. 11 PERFORMANCE AND EQUIPMENT SPECIFICATIONS

Performance and equipment specifications applicable to the CMS monitoring equipment for Boiler No. 11 are outlined in Table 5-2.

Table 5-2
Boiler No. 11 Performance and Equipment Specifications

Equipment	Type	Sample Interface	Manufacturer Specified Accuracy	Parametric Signal Analyzer/Monitor Range/Output	Data Collection and Reduction Systems
Opacity Meter	Sick Optics Dusthunter T200	Light transmission = transmitter/ receiver unit and reflector unit on precipitator outlet duct to stack	±2% full scale	System span 0-80%/ 4-20 mA (max range 100%)	Data is collected in a DCS system. VIM software is used to reduce and manage the data from the DCS system.
Center O_2 Meter	Rosemount 3000/3008 Probe O_2 Sensor	Zirconia electrochemi-cal cell positioned in the boiler	0.1% of O_2 or 3% of reading (whichever is greater)	Calibrated range: 0-10% O_2 4-20 mA (max range 25% O_2)	Data is collected in a DCS system. VIM software is used to reduce and manage the data from the DCS system.
East and West O_2 Meters	Yokogawa ZR22G200 SCETQEA O_2 Sensors	Zirconia electrochemi-cal cell positioned in the boiler	Zero and span drift <2% of range maximum	Calibrated range: 0-10% O_2/ 4-20 mA (max range 25% O_2)	Data is collected in a DCS system. VIM and PI software are used to reduce and manage the data from the DCS system.
Steam Flow Meter	Rosemount MDL3051S 1CD3A3F1 2A1AB3D2 E5L4M5	Coplanar differential pressure in steam line to distribution header	0.025% of span	0-331" H_2O, 4-20 mA, 0-900 KPPH	Data is collected in a DCS system. VIM software is used to reduce and manage the data from the DCS system.

6. PERFORMANCE EVALUATION PROCEDURES

Pursuant to §63.7505(d)(3), VE must address performance evaluation procedures and acceptance criteria (e.g., calibrations, accuracy audits, analytical drift) in the SSMP. Out-of-control (OOC) periods are addressed in 40 CFR §63.8(c)(7). This section of the regulation addresses the following:

40 CFR §63.8(c)(7):

(i) A CMS is out of control if –

- *(A) The zero (low-level), mid-level (if applicable), or high-level calibration drift (CD) exceeds two (2) times the applicable CD specification in the applicable performance specification or in the relevant standard; or*
- *(B) The CMS fails a performance test audit (e.g., cylinder gas audit), relative accuracy audit, relative accuracy test audit, or linearity test audit; or*
- *(C) The COMS CD exceeds two (2) times the limit in the applicable performance specification in the relevant standard.*

(ii) When the CMS is out of control, the owner or operator of the affected source shall take the necessary corrective action and shall repeat all necessary tests which indicate that the system is out of control. The owner or operator shall take corrective action and conduct retesting until the performance requirements are below the applicable limits. The beginning of the out-of-control period is the hour the owner or operator conducts a performance check (e.g., calibration drift) that indicates an exceedance of the performance requirements established under this part. The end of the out-of-control period is the hour following the completion of corrective action and successful demonstration that the system is within the allowable limits. During the period the CMS is out of control, recorded data shall not be used in data averages and calculations, or to meet any data availability requirement established under this part.

Pursuant to 40 CFR §63.8(c)(7), VE must take the necessary corrective actions to repair the CPMS. During the period the monitoring equipment is OOC, VE does not use the recorded data in data averages and calculations or to meet data availability requirements.

The OOC periods, as defined in 40 CFR §63.8(c)(7)(i), address COMS and CEMS. Except for the COMS used for compliance purposes for Boiler No. 11, these definitions do not apply to the SSMP for VE. The type of monitoring equipment that is used for compliance with the Boiler MACT does not typically involve frequent periodic drift tests because the monitoring equipment is not designed for that purpose. Furthermore, to date, U.S. EPA has not promulgated performance specifications for CPMS (i.e., pressure monitors, scrubber flow meters, or steam flow meters) of the type used for Subpart DDDDD compliance. The performance evaluation procedures outlined above apply to CMS with promulgated performance specifications. VE has developed their own performance evaluation procedures for the CMS without a promulgated performance specification using manufacturer specifications.

Therefore, VE has developed the following general definition of an OOC period for the non-COMS CMS for the Mill:

- *The beginning of the OOC period* is defined by the Mill as the hour that the CPMS reading is noted to be operating outside of the quality control limits. This can include a review of operating data in order to identify events, such as power outages, that may have caused the meter to go OOC.
- *The end of the OOC period* is defined by the Mill as the hour following the completion of corrective action and successful demonstration that the system is within the allowable quality control limits.

6.1 BOILER NO. 9 CMS PERFORMANCE EVALUATION PROCEDURES

VE has developed and implemented the following performance evaluation procedures for Boiler No. 9 CMS in Table 6-1. Additional details regarding the performance evaluation procedures, including calibration and adjustment procedures, can be found at the location referenced in Appendix A.

Table 6-1
Boiler No. 9 CMS Calibration Frequency and Calibration Acceptance Criteria

Measurement Type	Instrument Type	Calibration Frequency	Calibration Acceptance Criteria
O_2 Meter	Rosemount 3000/3008 Probe	Annual (Performance Evaluation)	Minimum tolerance of ±0.2% O_2
#2 Scrubber dP Transducer[(a)]	Rosemount 1151HP4S22	Annual (Performance Evaluation)	Minimum tolerance of ½-inch of water or 1% of pressure monitoring system operating range (whichever is less)
#3 Scrubber dP Transducer[(a)]	Rosemount 1151HP4S22	Annual (Performance Evaluation)	Minimum gauge tolerance of ½-inch of water or 1% of pressure monitoring system operating range (whichever is less)
North Scrubber Flow Meter[(a)]	Yokogawa AA1-PSA-AIDH/BR/HAL	Annual (Performance Evaluation)	Flow sensor with minimum tolerance of 2% of design flow rate
South Scrubber Flow Meter[(a)]	Yokogawa AXF150CE1AL1LCA1121BFF1	Annual (Performance Evaluation)	Flow sensor with minimum tolerance of 2% of design flow rate
Steam Flow Meter[(a)]	Rosemount MDL3051S1CD3A3F12A1AB3D2E5L4M5	Performance Evaluation During Scheduled Boiler Outage	Flow sensor with minimum tolerance of 2% of design flow rate

(a) Calibration is conducted through a performance evaluation at the time of each performance test, but no less frequently than annually.

6.1.1 Boiler No. 9 O_2 Performance Evaluation Procedures

To ensure on-going compliance with CO emissions limits, an O_2 trim system is utilized. The boiler excess air O_2 trim system set point is continuously monitored to ensure that it is no lower than the established operating limit. The requirement for a boiler using an O_2 trim system to demonstrate compliance with CO is defined in 40 CFR §63.7525(a)(7) and Table 8 of Subpart DDDDD. The operating limit will be the lowest hourly average O_2 measured during the most recent CO performance test. Periodic O_2 meter accuracy audits will be conducted to determine and/or adjust for drift.

6.1.1.1 *Initial Performance Evaluation*

Pursuant to 40 CFR §63.7525(a), boilers subject to CO emissions limits require the installation of an O_2 analyzer system. According to 40 CFR §63.7575, the O_2 analyzer was installed and initially validated based on the manufacturer recommendations.

6.1.1.2 *Daily*

The O_2 analyzer system is monitored continuously to ensure the O_2 sensors are functioning properly. The DCS monitoring system is built with "watchdogs" that track the communication between the different components of the tracking system. Loss of communication triggers an alarm which is followed-up on by an E&I and/or Process Control Engineer.

6.1.1.3 *Annually*

A performance evaluation will be conducted by the Mill personnel prior to performance testing and as part of the ongoing routine maintenance for the system. The calibration will be checked by applying known gas concentrations to the probe and then calculating the percent error (difference between the transmitter value and the known signal value). During the audit, the instrumentation will be inspected for conformance with manufacturer specifications. In addition to the calibration checks, the facility will perform an inspection of all components for integrity, of all electrical connections for continuity, and of all mechanical connections for leakage.

Results of the performance audits are documented on the CPMS Evaluation Form printed from the SAP system (See Appendix B for an example of the required information). If an adjustment is required, the technician will indicate this on the evaluation form and record the readings before and after adjustment. Audit results will be maintained for five (5) years.

6.1.1.4 *Acceptance Criteria*

Should the annual audit readings exceed ±0.2% O_2, the O_2 meter is OOC and subject to CMS downtime. When the meter is OOC, corrective action must be initiated as described in Section 9.

If corrective action is required, the action taken will be recorded in the SAP Maintenance Tracking System.

Table 6-2
Boiler No. 9 O_2 Corrective Action Trigger Points

Source/Monitor	Point of Corrective Action	OOC Period Begins	OOC Period Ends
O_2 Analyzer System	Audit difference ±0.2% O_2	Upon failure of audit	Upon successful completion of audit

6.1.2 Boiler No. 9 Scrubber Differential Pressure Monitor Performance Evaluation Procedures

To ensure on-going compliance, the differential pressure is continuously monitored, and periodic accuracy audits are conducted to determine and adjust for calibration drift. The pressure monitoring requirements for boilers using a wet scrubbers to control PM emissions are defined in 40 CFR §63.7525(f). Differential pressure must be measured at least once each 15-minute period. The pressure sensor must be certified by the manufacturer to have a pressure gauge with a minimum tolerance of 1.27 centimeters (cm) of H_2O or a transducer with a minimum tolerance of 1% of the pressure range, pursuant to 40 CFR §63.7525(f)(3). Differential pressure 30-day rolling averages must meet the minimum operating limit established during the most recent performance test compliance demonstration, pursuant to 40 CFR §63.7575. The operating limit will be the lowest hourly average scrubber pressure drop measured during the most recent performance test.

6.1.2.1 *Initial Performance Evaluation*

The pressure sensors are calibrated at the factory. The pressure sensors were installed and initially validated based on the manufacturer's recommendations.

6.1.2.2 *Daily*

The scrubber differential pressure measurement systems are monitored continuously to ensure the units are functioning properly. The VIM data collection system performs "flat-line" and "out-of-range" check on the meter signals. If the values received into the VIM data collection system have not shown a change in the readings (using a maximum minus minimum average greater than zero over a 30-minute period) the system will create an alarm, which requires a corrective action by operations. If at any time the measured pressure exceeds the manufacturer specified maximum operating pressure range, an alarm will be triggered. Maintenance will conduct a performance evaluation of the pressure monitoring system and will confirm that the pressure monitoring system continues to meet the performance requirements in this plan. Alternatively, maintenance will install and verify the operation of a new pressure sensor pursuant to 40 CFR §63.7525(f)(6). In addition, the DCS monitoring system is built with "watchdogs" that track the communication between the different components of the tracking system. Loss of communication triggers an alarm which is followed-up on by an E&I and/or Process Control Engineer. If the signals meet the required periodic checks, the signal is valid and no manual inspection for pluggage is required. Continuous flat-line monitoring constitutes compliance with the daily check provision pursuant to 40 CFR §63.7525(f)(4). All periods of monitor downtime, along with cause and corrective action, will be tracked in the VIM data collection system.

6.1.2.3 *Annually*

Pressure transducer performance audits will be conducted annually by the Mill personnel prior to performance testing pursuant to 40 CFR §63.7525(f)(5). The calibration will be checked by applying known test signal values to the transducer and then calculating the percent error. The procedure will be performed by starting with a low signal value and increasing upwards to the max calibration value. During the audit, the transducer will be inspected for conformance with manufacturer specifications, and a zero check will be conducted. Results of the performance audits are documented on the CPMS Evaluation Form in the SAP system (See Appendix B for an example of the required information). If an adjustment is required, the technician will indicate this on the evaluation form and record the readings before and after adjustment. Audit results will be maintained for five (5) years.

6.1.2.4 *Acceptance Criteria*

Should the audit readings be outside of ±0.5 inches H_2O, the monitor is OOC and subject to CMS downtime. When the monitor is OOC, corrective action must be initiated as described in Section 9. Data collected during this period must not be used in data averages, calculations, or to meet the data availability requirements. If corrective action is required, the action taken will be recorded on the performance audit form, with documentation maintained in the SAP Maintenance Tracking System.

Table 6-3
Boiler No. 9 Pressure Transducer Corrective Action Trigger Points

Source/Monitor	Point of Corrective Action	OOC Period Begins	OOC Period Ends
Differential Pressure Transducers	Pressure reading audit difference >0.5 in. H_2O	Upon failure of audit and/or when readings exceed the maximum operating range	Upon successful completion of audit

6.1.3 Boiler No. 9 Scrubber Flow Meter Performance Evaluation Procedures

To ensure on-going compliance, the flow rate will be continuously monitored, and periodic accuracy audits will be conducted to determine and/or adjust for calibration drift. The flow monitoring requirements for a boiler using a wet scrubber to control PM emissions is defined in 40 CFR §63.7525(e). This requires the flow to be measured at least once each 15-minute period and certified by the manufacturer to be accurate within ±2% of the flow rate. The 30-day rolling averages must meet the minimum operating limit established during the most recent performance test compliance demonstration pursuant to 40 CFR §63.7575. The operating limit will be the lowest hourly average liquid flow rate measured during the most recent performance stack test.

6.1.3.1 *Initial Performance Evaluation*

The flow sensors are wet calibrated at the factory and do not require further calibration upon installation. The flow meter was installed and initially validated based on manufacturer recommendations.

6.1.3.2 *Daily*

The scrubber flow meters are monitored continuously to ensure they are functioning properly. The DCS monitoring system is built with "watchdogs" that track the communication between the different components of the monitoring system. Loss of communication triggers an alarm which is followed-up on by an E&I and/or Process Control Engineer. In addition, the VIM data collection system will perform flat-line checks on the meter's signal. If the value received into VIM system has not shown a change in the reading (analyzing a change in flow readings over a 15-minute period) the system will create an alarm, which will require acknowledgement and entry of a cause and corrective action by operations. This alarm must be followed-up on by operations and/or maintenance. The VIM data collection system will also track all periods of monitor downtime, along with cause and corrective actions.

6.1.3.3 *Annually*

Flow sensor calibration checks or audits will be performed annually pursuant to 40 CFR §63.7525(e)(4). The zero calibration will be checked by isolating the flow and checking the zero reading. The percent error will be calculated as the ratio of the zero reading to the full scale reading. During the audit, the sensor will be inspected for conformance with manufacturer specifications. An inspection of all components for integrity, of all electrical connections for continuity, and of all mechanical connections for leakage will be conducted.

Results of the performance audits are documented on the CPMS Evaluation Form in the SAP system (See Appendix B for an example of the required information). If an adjustment is required, the technician will indicate this on the evaluation form and record the readings before and after adjustment. Audit results will be maintained for five (5) years.

6.1.3.4 *Acceptance Criteria*

Should the annual audits exceed 2%, the meter is OOC and subject to CMS downtime. When the meter is OOC, corrective action must be initiated as described in Section 9. Data collected during this period must not be used in data averages, calculations, or to meet the data availability requirements. If corrective action is required, the action taken will be recorded on the performance audit form, with documentation maintained in the SAP Maintenance Tracking System.

Table 6-4
Boiler No. 9 Scrubber Flow Meter Corrective Action Trigger Points

Source/Monitor	Point of Corrective Action	OOC Period Begins	OOC Period Ends
Scrubber Flow Meters	Audit error >2% of design flow rate (flow zero reading >50 GPM)	Upon failure of audit	Upon successful completion of audit

6.1.4 Boiler No. 9 Steam Flow Meter Performance Evaluation Procedures

To ensure on-going compliance with boiler operating loads, the steam flow rate will be continuously monitored, and periodic accuracy audits will be conducted to determine and/or adjust for calibration drift. For boilers demonstrating compliance through performance testing, the requirement for an operating load limit is described in Table 4 of Subpart DDDDD. This requires maintaining the operating load such that it does not exceed 110% of the highest hourly average recorded during the most recent performance test. Compliance will be determined on a 30-day rolling average.

6.1.4.1 *Initial Performance Evaluation*

The steam flow meter is factory calibrated. The steam flow meter was installed and initially validated based on manufacturer recommendations.

6.1.4.2 *Daily*

The steam flow meter will be continuously monitored, pursuant to 40 CFR §63.8(c)(6), to ensure the unit is functioning properly. Flat-line checks on the meter's signal will be performed by the VIM data collection system. If the value received into VIM system has not shown a change in the reading (analyzing a change in flow readings over a 15-minute period) the system will create an alarm which will require acknowledgement by operations, evaluation of monitor status, and entry of a cause and corrective action. In addition, the DCS monitoring system is built with "watchdogs" that track the communication between the different components of the tracking system. Loss of communication triggers an alarm which is followed-up on by an E&I and/or Process Control Engineer. All periods of monitor downtime, along with cause and corrective action, will be tracked in the VIM data collection system.

6.1.4.3 *Annually*

Because performance evaluations of these meters require the boiler to be offline, evaluations will be conducted by maintenance personnel during scheduled boiler outages. Results of performance evaluations will be documented in the Mill's SAP maintenance tracking system. The calibration will be checked by applying known test signal values to the flow transmitter and then calculating the percent error (difference between the transmitter value and the known signal value). The procedure will be performed by starting with a low signal value and increasing upwards to the maximum calibration value, then back down to the low point signal. During the audit, flow tubes will be inspected for conformance with manufacturer specifications, and a zero check will be conducted on the sensors.

In addition to the calibration checks, the facility will perform an inspection of all components for integrity, of all electrical connections for continuity, and of all mechanical connections for leakage.

Results of the performance audits are documented on the CPMS Evaluation Form in the SAP system (See Appendix B for an example of the required information). If an adjustment is required, the technician will indicate this on the evaluation form and record the readings before and after adjustment. Audit results will be maintained for five (5) years.

6.1.4.4 *Acceptance Criteria*

Should the annual audit error exceed 2%, the meter is OOC and subject to CMS downtime. When the meter is OOC, corrective action must be initiated as described in Section 9. Data collected during this period must not be used in data averages, calculations, or to meet the data availability requirements. If corrective action is required, the action taken will be recorded on the performance audit form, with documentation maintained in the SAP Maintenance Tracking System.

Table 6-5
Boiler No. 9 Steam Flow Meter Corrective Action Trigger Points

Source/Monitor	Point of Corrective Action	OOC Period Begins	OOC Period Ends
Steam Flow Meter	Audit error >2% of design flow rate (flow zero reading >7 KPPH)	Upon failure of audit	Upon successful completion of audit

6.2 BOILER NO. 11 CMS PERFORMANCE EVALUATION PROCEDURES

VE has developed and implemented the following performance evaluation procedures for Boiler No. 11 CMS in Table 6-6. Additional details regarding the CMS performance evaluation procedures, including calibration and adjustment procedures can be found at the location referenced in Appendix A.

Table 6-6
Boiler No. 11 CMS Calibration Frequency and Calibration Acceptance Criteria

Measurement Type	Instrument Type	Calibration Frequency	Calibration Acceptance Criteria
Opacity Meter	Sick Optics Dusthunter T200	Daily (Zero and Span)	≤ 4% Opacity
		Quarterly (Performance Audit)	Zero Compensation: ≤ 4% Opacity
			Audit Zero: ≤ 1% Opacity
			Audit Calibration Error:

Measurement Type	Instrument Type	Calibration Frequency	Calibration Acceptance Criteria
			≤ 3% Opacity
			Optical Alignment: Light beam outside of acceptable alignment area
		Annual (Zero Alignment)	≤ 2% Opacity
Center O_2 Meter	Rosemount 3000/3008 Probe O_2 Sensor	Annual (Performance Audit)	Minimum tolerance of ±0.2% O_2
East and West O_2 Meters	Yokogawa ZR22G200SCETQEA O_2Sensors	Annual (Performance Audit)	Minimum tolerance of ±0.2% O_2
Steam Flow Meter	Rosemount MDL3051S1CD3A3F 12A1AB3D2E5L4M5	Performance Evaluation During Scheduled Boiler Outage	Flow sensor with minimum tolerance of 2% of flow rate

6.2.1 Boiler No. 11 O_2 Performance Evaluation Procedures

To ensure on-going compliance with CO emissions limits, an O_2 trim system system is utilized. The boiler excess air O_2 trim system set point is continuously monitored to ensure that it is no lower than the established operating level. Periodic O_2 meter accuracy audits will be conducted to determine and/or adjust for drift. The requirement for a boiler using an O_2 trim system to demonstrate compliance with CO is defined in 40 CFR §63.7525(a)(7) and Table 8 of Subpart DDDDD. The operating limit will be the lowest hourly average O_2 measured during the most recent CO performance test.

6.2.1.1 *Performance Evaluation*

Pursuant to 40 CFR §63.7525(a), boilers subject to CO emissions limits require the installation of an O_2 analyzer system. In accordance with 40 CFR §63.7575, the O_2 analyzer was installed and initially validated based on the manufacturer recommendations.

6.2.1.2 *Daily*

The O_2 analyzer system is monitored continuously to ensure the O_2 sensors are functioning properly. The DCS monitoring system is built with “watchdogs” that track the communication between the different components of the tracking system. Loss of communication triggers an alarm which is followed-up on by an E&I and/or Process Control Engineer.

6.2.1.3 *Annually*

The O_2 analyzer system calibration checks or audits will be performed annually, at a minimum, pursuant to 40 CFR §63.7525(d)(4). The calibration will be checked by applying known gas concentrations to the probe and then calculating the percent error (difference between the transmitter value and the known signal value). During the audit, the instrumentation will be inspected for conformance with manufacturer specifications. In addition to the calibration checks, the facility will perform an inspection of all components for integrity, of all electrical connections for continuity, and of all mechanical connections for leakage.

Results of the performance audits are documented on the CPMS Evaluation Form printed from the SAP system (See Appendix B for an example of the required information). If an adjustment is required, the technician will indicate this on the evaluation form and record the readings before and after adjustment. Audit results will be maintained for five (5) years.

6.2.1.4 *Acceptance Criteria*

Should the annual audit exceed ±0.2% O_2, the meter is OOC and subject to CMS downtime. When the meter is OOC, corrective action must be initiated as described in the Mill's SSM and Emission Minimization plan. If corrective action is required, the action taken will be recorded in the SAP Maintenance Tracking System.

Table 6-7
Boiler No. 11 O_2 Corrective Action Trigger Points

Source/Monitor	Point of Corrective Action	OOC Period Begins	OOC Period Ends
O_2 Analyzer System	Audit difference ±0.2% O_2	Upon failure of audit	Upon successful completion of audit

6.2.2 Boiler No. 11 Steam Flow Meter Performance Evaluation Procedures

To ensure on-going compliance with boiler operating loads, the steam flow rate will be continuously monitored, and periodic accuracy audits will be conducted to determine and/or adjust for calibration drift. For boilers demonstrating compliance through performance testing, the requirement for an operating load limit is described in Table 4 of Subpart DDDDD. This requires maintaining the operating load such that it does not exceed 110% of the highest hourly average recorded during the most recent performance test. Compliance will be determined on a 30-day rolling averages.

6.2.2.1 *Performance Evaluation*

Flow meters are calibrated at the factory and do not require further calibration upon installation. The flow meter was installed and initially validated based on the manufacturer's recommendations.

6.2.2.2 *Daily*

The steam flow meter will be continuously monitored, pursuant to 40 CFR §63.8(c)(6), to ensure the unit is functioning properly. Flat-line checks on the meter's signal will be performed by the VIM data collection system. If the value received into VIM system has not shown a change in the reading (analyzing a change in flow readings over a 15-minute period) the system will create an alarm which will require acknowledgement by operations, evaluation of monitor status, and entry of a cause and corrective action. In addition, the DCS monitoring system is built with "watchdogs" that track the communication between the different components of the tracking system. Loss of communication triggers an alarm which is followed-up on by an E&I and/or Process Control Engineer. All periods of monitor downtime, along with cause and corrective action, will be tracked in the VIM data collection system.

6.2.2.3 *Annually*

Because performance evaluations of this meter require the boiler to be offline, evaluations will be conducted by maintenance personnel during scheduled boiler outages. Results of performance evaluations will be documented in the Mill's SAP maintenance tracking system. The calibration will be checked by applying known test signal values to the flow transmitter and then calculating the percent error (difference between the transmitter value and the known signal value). The procedure will be performed by starting with a low signal value, increasing upwards to the max calibration value, then back down to the low point signal. During the audit, flow tubes will be inspected for conformance with manufacturer specifications, and a zero check will be conducted on the sensors.

In addition to the calibration checks, the facility will perform an inspection of all components for integrity, of all electrical connections for continuity, and of all mechanical connections for leakage.

Results of the performance audits are documented on the CPMS Evaluation Form in the SAP system (See Appendix B for an example of the required information). If an adjustment is required, the technician will indicate this on the evaluation form and record the readings before and after adjustment. Audit results will be maintained for five (5) years.

6.2.2.4 *Acceptance Criteria*

Should the annual audit error exceed 2%, the meter is OOC and subject to CMS downtime. When the meter is OOC, corrective action must be initiated as described in Section 9. Data collected during this period must not be used in data averages, calculations, or to meet the data availability requirements. If corrective action is required, the action taken will be recorded on the performance audit form, with documentation maintained in the SAP Maintenance Tracking System.

Table 6-8
Boiler No. 11 Steam Flow Meter Corrective Action Trigger Points

Source/Monitor	Point of Corrective Action	OOC Period Begins	OOC Period Ends
Steam Flow Meter	Audit error >2% of design flow rate (flow zero reading >18 KPPH)	Upon failure of audit	Upon successful completion of audit

6.2.3 Boiler No. 11 COMS Performance Evaluation Procedures

The Boiler No. 11 COMS is operated according to the performance specifications under Appendix B to 40 CFR Part 60 and meets the requirements of 40 CFR §63.7525. Additional details regarding the COMS quality assurance and performance evaluation procedures, including calibration and adjustment procedures can be found in the Mill's CEMS Quality Assurance Plan. VE has developed specific definitions for OOC for the COMS. The definition is based on the general premise of defining when the data is "valid" versus when the data is "invalid". The definition is presented in Table 6-9.

Table 6-9
Boiler No. 11 COMS Definition of "Out-of-Control"

Measurement Type	Instrument Type	Definition of "Out'-of-Control"
Opacity Meter	Sick Optics COMS	The data is considered "out of control" if the zero, or high-level calibration drift (CD) exceeds two (2) times the applicable CD specification in the applicable performance specification.

7. DATA COLLECTION AND REDUCTION

Pursuant to 40 CFR §§63.8(g)(2) and 63.7505(d), data from COMS shall be reduced to six (6)-minute averages calculated from 36 or more data points equally spaced over each six (6)-minute period. Data from CEMS for measurement other than opacity shall be reduced to one (1)-hour averages computed from four (4) or more data points equally spaced over each one (1)-hour period, except during periods when calibration, QA, or maintenance activities pursuant to provisions of this part are being performed. During these periods, a valid hourly average shall consist of at least two (2) data points with each representing a 15-minute period. The following paragraphs describe how data is collected and reduced at the Escanaba Mill to meet the regulations.

Continuous output from CMS monitors is converted to parameter readings using the DCS, PI, and VIM data collection systems. VIM data collection system utilizes the data to determine 15-minute, one (1)-hour, and ultimately 30-day rolling averages. In accordance with 40 CFR §63.7525(d)(1), the CPMS must complete a minimum of one (1) cycle of operation for each successive 15-minute period, and a minimum of four (4) successive cycles to have a valid hour of data. Any data recorded during monitoring malfunctions, associated repairs, OOC periods, or QA/QC activities are invalid and will not be used in calculating data averages. Valid data also exclude hours during startup and shutdown. In accordance with 40 CFR §63.7535(d), except for periods of monitoring system malfunctions, repairs associated with monitoring system malfunctions, and required monitoring system QA/QC activities (including, as applicable, system accuracy audits, calibration checks, and required zero and span adjustments), failure to collect required data is a deviation of the monitoring requirements.

A 15-minute block value is reported as long as there is at least one (1) valid data point available during the time period in accordance with 40 CFR §63.7525(d)(1). If more than one (1) valid data point is available, the system will average the data to create the 15-minute block value. The system will then calculate a one (1)-hour block average from the previous four (4) 15-minute block values. There must be four (4) valid 15-minute values available to calculate the one (1)-

hour block average, otherwise the system will report monitor downtime for the one (1)-hour block period. The exceptions to the four (4) 15-minute period requirement are:

1. If QA/QC activities are being performed, then a minimum of two (2) valid 15-minute block values may be used to calculate the one (1)-hour block average [40 CFR §63.8(g)(2)]
2. If the unit (i.e., boiler) operating time is less than one (1)-hour, then the following criteria will be used[3]:

Table 7-1
Valid Data & Averaging Time

Operating Time	Minimum Number of 15-minute data blocks
Less than 30 minutes	Will Not Calculate
30 minutes	Two (2) 15-minute blocks
30 to 45 minutes	Three (3) 15-minute blocks
Greater than 45 minutes	Four 15-minute blocks

Note that data from the O_2 trim system O_2 sensors are transferred directly from the DCS to the O_2 trim system controller. The O_2 trim system utilizes a feedback controller configured to handle the variability associated with data from the O_2 sensor because the O_2 system must be responsive to changes in O_2 levels. For this reason, the O_2 trim system set point data are not reduced to 15-minute averages. Furthermore, VE believes that data reduction of O_2 trim system set point is not required as there is no parametric limit (e.g., 30-day rolling average) associated with this compliance option.

The system will then calculate the 30-day rolling average by averaging the previous valid one (1)-hour block average pursuant to 40 CFR §63.7525(d)(4). The 30-day rolling average (except for the O_2 trim system set point) will be calculated with all recorded readings as arithmetic mean of the previous 720 hours of valid operating data. The 720 hours should be consecutive, but not necessarily continuous if operations were intermittent. The 30-day rolling average will be calculated at midnight each day.

[3] Adopted from EPA ADI Control Number 9800094

8. PREVENTATIVE MAINTENANCE

The primary objective of a comprehensive preventative maintenance program is to help ensure the timely and effective completion of a measurement effort. VE's preventative maintenance program is designed to minimize the downtime of CMS equipment due to component failures.

Routine maintenance and performance audit procedures are documented and scheduled using the Mill's SAP Maintenance Planning and Tracking Systems. The SAP Maintenance Tracking System will be used to track the maintenance history of the equipment. All maintenance activities performed on CMS equipment are recorded in SAP along with completion dates by E&I or Mechanical Maintenance Personnel.

The maintenance frequency will be based on the manufacturer's recommendations, equipment history, or the industry standard. Adjustments in the frequency will be made as necessary. Mechanical problems identified during basic care routes will be identified in the work order system and repaired at the next available opportunity or during the next shutdown depending on the severity of the problem and the potential environmental impact.

Preventative maintenance procedures are conducted based on standard industry practices and facility maintenance experience. Complete preventative maintenance procedures can be found at the location referenced in Appendix A.

8.1 SPARE PARTS

VE maintains a spare parts and replacement equipment inventory based on manufacturer recommendations and Mill maintenance experience for routine repair of the monitoring equipment required by the Boiler MACT. An adequate spare parts inventory is required to minimize equipment downtime. The spare parts inventory targets those parts and supplies which are subject to frequent failure, have limited useful lifetimes, and/or cannot be obtained in a timely manner should an equipment failure occur. Spare parts necessary for routine maintenance are stocked in the storeroom, and in some cases the maintenance areas. The spare parts inventory is maintained by the SAP tracking system.

9. CORRECTIVE ACTION PROGRAM FOR MALFUNCTIONING CMS

When a monitor is OOC, corrective action must be initiated. Data collected during this period must not be used in data averages or calculations or to meet the data availability requirements. If corrective action is required, the action taken will be documented in SAP Maintenance Tracking System. Corrective actions resulting from performance audits will be recorded on the performance audit form, with documentation maintained in the SAP Maintenance Tracking System. Corrective action procedures can be found at the location referenced in Appendix A. Resources that the Mill uses for corrective actions for malfunctioning CMS include manufacturer guidelines, maintenance procedures, and maintenance experience. CMS malfunctions and downtime are tracked using the automated electronic recordkeeping and reporting system (VIM). Records of all corrective actions are maintained in the SAP maintenance tracking system and COMS electronic logbook.

10. RECORDKEEPING AND REPORTING REQUIREMENTS

Pursuant to 40 CFR §63.7505(d)(2)(iii), VE must address ongoing recordkeeping and reporting procedures in accordance with the general requirements of 40 CFR §§63.10(c) (as applicable in Table 10 to Subpart DDDDD), (e)(1), and (e)(2)(i). VE must also address ongoing recordkeeping and reporting procedures pursuant to 40 CFR §§63.7535(c) and (d), 63.7550(d) and (e), 63.7555(b), (c), (d)(1-8) and (d)(10-11), and 63.7560.

In order to comply with these requirements, VE will maintain the following records in a form suitable and readily available for review for a minimum of five (5) years:

- Required monitoring data including monitoring data from the beginning of startup until the end of shutdown, as defined in Section 3. This includes monitoring data recorded during unavoidable CPMS breakdowns and OOC periods, as well as monitoring data for COMS during a performance evaluation. Records are maintained electronically.
- Required measurements needed to demonstrate compliance with a relevant standard (e.g., 15-minute readings and hourly averages of CMS data and/or raw performance testing measurements).
- The occurrence and duration of each startup or shutdown when the startup or shutdown caused the source to exceed any applicable emissions limitation in the relevant emissions limits.
- The occurrence and duration of each malfunction of operation (i.e., process equipment) or the required air pollution control and monitoring equipment, as defined in Section 3.
- The nature and cause of each malfunction (if known) of the CMS.
- The date and time identifying each period during which the CMS was inoperative except for zero (low-level) and high-level checks.
- All required maintenance and adjustments performed on the air pollution control and monitoring equipment.
- The nature of the repairs or adjustments to the CMS that was inoperative or out of control. Records are maintained electronically.
- Results of performance tests/audits, CMS performance evaluations, and opacity.

- Measurements as may be necessary to determine the conditions of performance tests and performance evaluations.
- CMS calibration checks.
- Previous (i.e., superseded) versions of the performance evaluation plan, which is presented in this SSMP.
- Request for alternatives to relative accuracy tests for CEMS.
- The data and time that each deviation started and stopped.
- Nature of the deviation (i.e., what you deviated from).
- A summary of the total duration of the deviation during the reporting period and the total duration as a percent of the total source operating time during the reporting period.
- A characterization of the total duration of the deviations during the reporting period into those that are due to control equipment problems, process problems, other known causes, and other unknown causes.
- A summary of the total duration of CMS downtime during the reporting period and the total duration for CMS downtime as a percent of the total source operating time during that reporting period.
- A brief description of the source for which there was a deviation.
- A description of any changes in CMS, processes, or controls since the last reporting period for the source for which there was a deviation.
- Monitoring data and calculated averages for applicable operating limits.
- Monthly fuel use including type(s) and amount(s) used.
- The type(s) and amount(s) of fuels used during each startup and shutdown.
- The calendar date, time, occurrence, and duration of each startup and shutdown.
- Actions taken during periods of malfunction to minimize emissions.
- Dates and duration of periods when the CMS is out of control, as defined in Section 6, to completion of the corrective actions necessary to return the CMS to operation consistent with the SSMP.
- A copy of calculations and supporting documentation of maximum mercury fuel input.
- A copy of calculations and supporting documentation of maximum chlorine fuel input.

- The specific identification (i.e., the date and time of commencement and completion) of each period of excess emissions and parametric monitoring exceedances, as defined in Section 3.
- The corrective action taken or preventive measures adopted, as defined in Section 9.
- The total process operating time during the reporting period.
- Procedures that are part of a quality control program developed and implemented for the monitoring equipment.

11. REVISIONS OF THE SSMP

Revisions of the SSMP are the responsibility of VE.

11.1 REVISIONS REQUIRED BY THE PERMITTING AUTHORITY

As stated in 40 CFR §63.7507(d), VE must develop this SSMP and make it available for inspection by the Michigan Department of Environment, Great Lakes, and Energy (EGLE). If EGLE inspects the plan and determines that any portion of the plan is not adequate, VE will address the issues as agreed upon with EGLE.

11.2 REVISIONS INITIATED BY VE

VE may periodically revise this plan, as necessary, to satisfy the requirements of the regulation or to reflect changes in equipment or procedures at an affected source. Revisions to the plan are documented in Table 11-1. In order to make these changes, VE will use the following procedure:

- VE will review the SSMP periodically, at a frequency no less than annually, and amend the SSMP accordingly when there is a change that materially affects the design, operation, or maintenance of a CMS.
- VE will develop the revised plan and can implement the changes, as appropriate, upon completion of the revisions.
- The Mill will maintain copies of the previous versions of this plan for a minimum of five (5) years.

Table 11-1
SSMP Revisions Summary

Date	Description of Activity	Reviewer	Management Approval
Revision 0, 9/18/15	Added manual operation exceptions to operating O2 trim system		
June 22, 2020	Updated daily check language		

APPENDIX A – LOCATION OF CMS DOCUMENTATION

Table A-1
CMS Documentation Location

Document	Record Retention	Location
Performance Test and Continuous Monitoring System Performance Evaluation Results	*C+5*	Environmental Files
Daily Assessments	*C+5*	PI/Proficy/VIM System
Performance Evaluation Procedures and Results	*C+5*	SAP Maintenance Tracking System, Environmental Files
Monitor Downtime & Corrective Actions	*C+5*	VIM System, Environmental Files
Preventative Maintenance Procedures, Corrective Action Procedures	*C+5*	Inside Utilities Maintenance Shop Files Maintenance Sharepoint, Shared Documents\CEMS electronic files
CEMS Quality Assurance Plan	*C+5*	Environmental Files Maintenance Sharepoint, Shared Documents\CEMS electronic files
Routine Maintenance, Corrective Action Maintenance Documentation	*C+5*	SAP Maintenance Tracking System
Spare Parts List	*C*	SAP Maintenance Tracking System

C – Current Year
C+5 – Current Year and previous five (5) years of records

APPENDIX B –
CPMS PERFORMANCE EVALUATION FORMS

BOILER MACT CONTINUOUS MONITORING SYSTEM (CMS) PERFORMANCE AUDIT FORM
NO. 9 BOILER OXYGEN ANALYZER

Maintenance Plan 63741
Audit Frequency – 6 month and as required
Functional Location: EM-PBW-BL09-030111

Procedure

1. Notify operations of intent to perform work on analyzer.
2. Have operator put excess air control in manual if boiler is not down.
3. Run calibration gases.
4. Verify signal from the analyzer to I/A for accuracy.
5. Clean and rebuild if performance deems necessary:
    a. Remove one probe at a time. Have operator INCREASE DRAFT. Handle with CARE, use HOT GLOVES!
    b. Re-install and warm analyzer back up. Perform steps 3 and 4 above.
6. Document the As Found and As Left (if applicable) values – If the % oxygen reading is within +/- 0.2 % O_2, circle PASS, if not, circle FAIL. Notify the Environmental Department in case of failure.
7. Contact operator to inform them when all work is completed.
8. Complete this sheet, save it in the maintenance files and send a copy to the Environmental Department (Adam Becker, Mailbox 3).
9. Document completion and all changes "AS FOUND", "AS LEFT" in SAP Activities History and SharePoint.

Instrument calibration range: 0 – 10% O_2

Date of Calibration ___________________

Person Conducting Test __________________

No. 9 Boiler Oxygen Analyzer
Model: Rosemount 3000/3008
Loop #: L-03-0111

As Found (before adjustments)		
Cylinder Concentration	Analyzer Reading	Difference
0.4% ______		
8.0%______		

As Left (after adjustments)		
Cylinder Concentration	Analyzer Reading	Difference
0.4% ______		
8.0%______		

As Found O2 Difference (circle PASS or FAIL):	**O2 Difference within +/- 0.2% O2 PASS**	**O2 Difference outside of +/- 0.2% O2 FAIL**	**As Found O2 Difference (circle PASS or FAIL):**	**O2 Difference within +/- 0.2% O2 PASS**	**O2 Difference outside of +/- 0.2% O2 FAIL**

Comments:

BOILER MACT CONTINUOUS MONITORING SYSTEM (CMS) PERFORMANCE AUDIT FORM
NO. 9 BOILER SCRUBBER DIFFERENTIAL PRESSURE TRANSMITTERS

Maintenance Plan 63737
Audit Frequency – Annual and as required
Functional Location: EM-PWB-BL09-330800

Procedure

1. Notify operations of intent to perform work on transmitters.
2. Put loop in manual control if boiler is not down.
3. Close isolation valves and remove transmitter.
4. Bring transmitter to shop and perform calibration using Fluke Calibrator.
5. Document the As Found and As Left (if applicable) values - Calculate the difference between the actual mV reading and the expected mV reading and note in table. If difference is < 0.4 mA, circle PASS, if > 0.4 mA circle FAIL. Notify the Environmental Department in case of failure.
6. Reinstall transmitter. Open isolation valves slowly. Let operations put back to normal.
7. Complete this sheet, save it in the maintenance files and send a copy to the Environmental Department (Paula LaFleur, Mailbox 3).
8. Record completion in SAP Activities History.

Instrument calibration range: 0 – 20 inches H_2O = 4 – 20 mA
(Maximum instrument operating range = 150 inches H_2O)

Date of Calibration ___________________
Person Conducting Test __________________

No. 2 Scrubber dP Transmitter
Model: Rosemount 1151HP4S22
Loop #: L-33-0800B

	As Found (before adjustments)			As Left (after adjustments)		
Inches of H_2O	Expected mA	Actual mA	Difference (Actual – Expected)	Expected mA	Actual mA	Difference (Actual – Expected)
0”	4			4		
4”	7.2			7.2		
8”	10.4			10.4		
12”	13.6			13.6		
16”	16.8			16.8		
20”	20			20		

As Found Maximum mA Difference (circle PASS or FAIL):	**< 0.4 PASS**	**> 0.4 FAIL**	**As Left Maximum mA Difference (circle PASS or FAIL):**	**< 0.4 PASS**	**> 0.4 FAIL**

Date of Calibration ___________________
Person Conducting Test __________________

No. 3 Scrubber dP Transmitter
Model: Rosemount 1151HP4S22
Loop #: L-33-0800C

Inches of H_2O	As Found (before adjustments) Expected mA	As Found Actual mA	As Found Difference (Actual – Expected)	As Left (after adjustments) Expected mA	As Left Actual mA	As Left Difference (Actual – Expected)
0”	4			4		
4”	7.2			7.2		
8”	10.4			10.4		
12”	13.6			13.6		
16”	16.8			16.8		
20”	20			20		

As Found Maximum mA Difference (circle PASS or FAIL):	**< 0.4 PASS**	**> 0.4 FAIL**	**As Left Maximum mA Difference (circle PASS or FAIL):**	**< 0.4 PASS**	**> 0.4 FAIL**

Note: The acceptance criteria of 0.4 mA is equivalent to 0.5 inches of H_2O.

Comments:

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BOILER MACT CONTINUOUS MONITORING SYSTEM (CMS) PERFORMANCE AUDIT FORM
NO. 9 BOILER SCRUBBER FLOW TRANSMITTERS

Maintenance Plan 63735
Audit Frequency – Annual and as Required
Functional Locations: EM-PWB-BL09-030602 / EM-PWB-BL09-030603

Procedure
Note: This zero check must be performed while the scrubber is not in operation under conditions of a full pipe with no flow.

1. Notify operations of intent to perform work on transmitters.
2. Locate the horizontal pipe where the flow meter is located.
3. Fill pipe section where meter is located with water and close valves to ensure there is no flow in the pipe.
4. Record flow readings (DCS PI values).
5. Document the As Found and As Left (if applicable) values – If the flow zero reading is within 0 +/- 50 GPM, circle PASS, if not, circle FAIL. Notify the Environmental Department in case of failure.
6. Complete this sheet, save it in the maintenance files and send a copy to the Environmental Department (Adam Becker, Mailbox 3).
7. Record completion in SAP Activities History.

Instrument calibration range: 0 – 2500 GPM = 4 – 20 mA

Date of Calibration ___________________
Person Conducting Test __________________

North Scrubber Flow Transmitter
Model: Yokogawa – Integral type ceramic magnetic flow model AE215MG-AA1-PSA-AIDH/BR/HAL (old style)
Loop #: L-03-0602

As Found Zero Flow (before adjustments)	
Expected GPM	Actual GPM
0	

As Left Zero Flow (after adjustments)	
Expected GPM	Actual GPM
0	

As Found GPM (circle PASS or FAIL):	Flow within -50 to 50 GPM PASS	Flow outside of -50 to 50 GPM FAIL	As Left GPM (circle PASS or FAIL):	Flow within -50 to 50 GPM PASS	Flow outside of -50 to 50 GPM FAIL

South Scrubber Flow Transmitter
Yokogawa – Integral type ceramic magnetic flow model AXF150CE1AL1LCA1121BFF1
Loop #: L-03-0603

As Found (before adjustments)	
Expected GPM	Actual GPM
0	

As Left (after adjustments)	
Expected GPM	Actual GPM
0	

As Found GPM (circle PASS or FAIL):	Flow within -50 to 50 GPM PASS	Flow outside of -50 to 50 GPM FAIL	As Left GPM (circle PASS or FAIL):	Flow within -50 to 50 GPM PASS	Flow outside of -50 to 50 GPM FAIL

Comments:

BOILER MACT CONTINUOUS MONITORING SYSTEM (CMS) PERFORMANCE AUDIT FORM
NO. 9 BOILER STEAM FLOW TRANSMITTER

Maintenance Plan 63736
Audit Frequency – Annual and as Required
Functional Location: EM-PBW-BL09-030115

Procedure

1. Notify operations of intent to perform work on transmitters.
2. Put loop in manual control if boiler is not down.
3. Isolate at orifice plate taps. Verify by opening blowdown valves slowly.
4. Close isolation valves at Anderson Greenwood manifold
5. Bring transmitter to shop and perform calibration using Fluke Calibrator.
6. Document the As Found and As Left (if applicable) values - Calculate the difference between the actual mA reading and the expected mA reading and note in table. If difference is < 0.32 mA, circle PASS, if > 0.32 mA circle FAIL. Notify the Environmental Department in case of failure.
7. Reinstall transmitter with new gaskets. Open isolation valves slowly. Let operations put back to normal.
8. Complete this sheet, save it in the maintenance files and send a copy to the Environmental Department (Adam Becker, Mailbox 3).
9. Record completion in SAP Activities History.

Instrument calibration range: 0 – 250 inches H2O = 4 – 20 mA = 0-350 KPPH

Date of Calibration ___________________
Person Conducting Test __________________

No. 9 Boiler Steam Flow Transmitter
Model: Rosemount MDL3051S1CD3A3F12A1AB3D2E5L4M5
Loop #: L-03-0115

	As Found (before adjustments)			As Left (after adjustments)		
Inches of H2O	Expected mA	Actual mA	Difference (Actual – Expected)	Expected mA	Actual mA	Difference (Actual – Expected)
0”	4			4		
50”	7.2			7.2		
100”	10.4			10.4		
150”	13.6			13.6		
200”	16.8			16.8		
250”	20			20		

As Found Maximum mA Difference (circle PASS or FAIL):	**< 0.32 PASS**	**> 0.32 FAIL**	**As Left Maximum mA Difference (circle PASS or FAIL):**	**< 0.32 PASS**	**> 0.32 FAIL**

Note: The acceptance criteria of 0.32 mA equivalent to 2% of the calibrated steam flow range and equates to 7 KPPH steam flow (or or a pressure reading of 5 inches H_2O).

Comments:

BOILER MACT CONTINUOUS MONITORING SYSTEM (CMS) PERFORMANCE AUDIT FORM
NO. 11 BOILER OXYGEN ANALYZER

Maintenance Plan 53281
Audit Frequency – 6 month and as required
Functional Location: EM-PBW-BL11-680408

Procedure

1. Notify operations of intent to perform work on analyzer.
2. Have operator put excess air control in manual if boiler is not down.
3. Run calibration gases (see notes below comments).
4. Verify signal from the analyzer to I/A for accuracy.
5. Clean and rebuild if performance deems necessary:
    a. Remove one probe at a time. Have operator INCREASE DRAFT. Handle with CARE, use HOT GLOVES!
    b. Re-install and warm analyzer back up. Perform steps 3 and 4 above.
6. Document the As Found and As Left (if applicable) values – If the % oxygen reading is within +/- 0.2 % O_2, circle PASS, if not, circle FAIL. Notify the Environmental Department in case of failure.
7. Contact operator to inform them when all work is completed.
8. Complete this sheet, save it in the maintenance files and send a copy to the Environmental Department (Adam Becker, Mailbox 3).
9. Document completion and all changes “AS FOUND”, “AS LEFT” in SAP Activities History and SharePoint.

Instrument calibration range: 0 – 10% O_2

Date of Calibration ___________________
Person Conducting Test __________________

No. 11 Boiler Center Oxygen Analyzer
Model: Rosemount 3000/3008 (68-AE-0408)
Loop #: L-68-0408

As Found (before adjustments)		
Cylinder Concentration	Analyzer Reading	Difference
0.4% ______		
8.0%______		
Other %_______ (Cyl. # ____________) (Exp. Date_________)		
As Found O2 Difference (circle PASS or FAIL):	**O2 Difference within +/- 0.2% O2 PASS**	**O2 Difference outside of +/- 0.2% O2 FAIL**

As Left (after adjustments)		
Cylinder Concentration	Analyzer Reading	Difference
0.4% ______		
8.0%______		
Other %_______ (Cyl. # ____________) (Exp. Date_________)		
As Found O2 Difference (circle PASS or FAIL):	**O2 Difference within +/- 0.2% O2 PASS**	**O2 Difference outside of +/- 0.2% O2 FAIL**

No. 11 Boiler West Oxygen Analyzer
Model: Yokogawa ZR22G (68-AE-0408A)
Loop #: L-68-0408

As Found (before adjustments)		
Cylinder Concentration	Analyzer Reading	Difference
1% ________ (Cyl #____________) (Exp.Date_________)		
5% ________ (Cyl #____________) (Exp.Date_________)		

As Left (after adjustments)		
Cylinder Concentration	Analyzer Reading	Difference
1% ________ (Cyl. #___________) (Exp.Date_________)		
5% ________ (Cyl #____________) (Exp.Date_________)		

As Found O2 Difference (circle PASS or FAIL):	O2 Difference within +/- 0.2% O2 PASS	O2 Difference outside of +/- 0.2% O2 FAIL

As Found O2 Difference (circle PASS or FAIL):	O2 Difference within +/- 0.2% O2 PASS	O2 Difference outside of +/- 0.2% O2 FAIL

No. 11 Boiler East Oxygen Analyzer
Model: Yokogawa ZR22G (68-AE-0408B)
Loop #: L-68-0408

As Found (before adjustments)		
Cylinder Concentration	Analyzer Reading	Difference
1% ________ (Cyl #____________) (Exp.Date_________)		
5% ________ (Cyl #____________) (Exp.Date_________)		

As Left (after adjustments)		
Cylinder Concentration	Analyzer Reading	Difference
1% ________ (Cyl #____________) (Exp.Date_________)		
5% ________ (Cyl #____________) (Exp.Date_________)		

As Found O2 Difference (circle PASS or FAIL):	O2 Difference within +/- 0.2% O2 PASS	O2 Difference outside of +/- 0.2% O2 FAIL

As Found O2 Difference (circle PASS or FAIL):	O2 Difference within +/- 0.2% O2 PASS	O2 Difference outside of +/- 0.2% O2 FAIL

Comments:

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Procedure Notes:
East and West Analyzers

Bring two two-way radios set to channel 1. Have one person with the data sheet in the #11 Boiler 4th floor Foxboro rack room. Have the proper AIN block called up (408A – west or 408B – east) on the Foxboro I/A X-Terminal work station. The person in the rack room should also have a stopwatch to time the 4-minute calibration check periods.

The rack room person will instruct the boiler operator de-select the analyzer to be tested. (if 408A - west is deselected, the 408-center and 408B-east will be used for the average measurement boiler control signal.) When the boiler operator completes the de-selection process, the E&I at the analyzer can control the cal gas selection box to send the proper gas, either 1% or 5% O2.

For the 1% O2 checks on the east and west Yokogawa probes, go to the gas selection box above the appropriate analyzer. Turn on zero gas solenoid's manual operation by rotating clockwise. Also turn on the block valve solenoid to manual operation by rotating clock wise. This will send 1% gas to the probe. Wait approximately 4 minutes then record the measured reading at the transmitter display and on the Foxboro I/A AIN block. To test at 5% O2, run a long, ¼" nylon tubing from the 5% O2 protocol gas cylinder regulator output and connect it to the zero-gas supply inlet port* on the left side of the gas selection box and run calibration gas as previous. The 5% cylinder can be borrowed from the cylinder storage rack or the cylinder used for the center probe 5% calibration check.

> *Note that the reason the 5% O2 gas cannot be applied to the span gas supply port is that the proper 20.9% reference air would then be 5% gas. The analyzer will not work properly! This is due to the tubing path design of the gas selection box. 20.9% reference air must be maintained to the probes at all times.

BOILER MACT CONTINUOUS MONITORING SYSTEM (CMS) PERFORMANCE AUDIT FORM
NO. 11 BOILER STEAM FLOW TRANSMITTER

Maintenance Plan 13351, Item 14144
Audit Frequency – Annual and as required
Functional Location: EM-PBW-BL011-681813

Procedure

1. Notify operations of intent to perform work on transmitters.
2. Put loop in manual control if boiler is not down.
3. Isolate at orifice plate taps. Verify by opening blowdown valves slowly.
4. Close isolation valves at Anderson Greenwood manifold
5. Bring transmitter to shop and perform calibration using Fluke Calibrator.
6. Document the As Found and As Left (if applicable) values - Calculate the difference between the actual mA reading and the expected mA reading and note in table. If difference is < 0.32 mA, circle PASS, if > 0.32 mA circle FAIL. Notify the Environmental Department in case of failure.
7. Reinstall transmitter with new gaskets. Open isolation valves slowly. Let operations put back to normal.
8. Complete this sheet, save it in the maintenance files and send a copy to the Environmental Department (Adam Becker, Mailbox 3).
9. Record completion in SAP Activities History.

Instrument calibration range: 0 – 331 inches H2O = 4 – 20 mA = 0-900 KPPH

Date of Calibration ___________________
Person Conducting Test __________________

No. 11 Boiler Steam Flow Transmitter
Model: Rosemount MDL3051S1CD3A3F12A1AB3D2E5L4M5
Loop #: L-68-1813

Inches of H2O	As Found (before adjustments)			As Left (after adjustments)		
	Expected mA	Actual mA	Difference (Actual – Expected)	Expected mA	Actual mA	Difference (Actual – Expected)
0”	4			4		
50”	6.42			6.42		
82.75”	8			8		
165.5”	12			12		
248.25”	16			16		
331”	20			20		

As Found Maximum mA Difference (circle PASS or FAIL):	**< 0.32 PASS**	**> 0.32 FAIL**	**As Left Maximum mA Difference (circle PASS or FAIL):**	**< 0.32 PASS**	**> 0.32 FAIL**

Note: The acceptance criteria of 0.32 mA equivalent to 2% of the calibrated steam flow range and equates to 18 KPPH steam flow (or or a pressure reading of 6.62 inches H_2O).

Comments:

APPENDIX C –
ALTERNATIVE MONITORING APPROVAL – NO. 9 BOILER

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION 5
77 WEST JACKSON BOULEVARD
CHICAGO, IL 60604-3590

OCT - 9 2015

REPLY TO THE ATTENTION OF:

CERTIFIED MAIL
RETURN RECEIPT REQUESTED

Paula LaFleur
Environmental Manager
Verso Corporation
Escanaba Paper Company
7100 County 426
PO Box 757
Escanaba, Michigan 49829-0757

RE: Response to Alternative Monitoring Request for No. 9 Boiler
Industrial Boiler MACT, 40 C.F.R. 63 Subpart DDDDD

Dear Ms. LaFleur:

The U.S. Environmental Protection Agency has received and reviewed Escanaba Paper Company's (EPC) July 16, 2015 alternative monitoring requests for EPC's No. 9 Boiler in accordance with 40 C.F.R. 63.8(f) and 40 C.F.R. 63.7500(a)(2).

Based on your submittal we understand that the No. 9 Boiler is an approximately 360 million Btu per hour heat input, hybrid suspension grate (HSG) boiler that combusts both wood residue and natural gas. In the submittal, EPC requests that the applicable emission, monitoring, and operating limits for the HSG subcategory be waived for periods when the No. 9 Boiler is combusting only natural gas. Although we understand that the combustion of natural gas is inherently less emissive, 40 C.F.R. Part 63, does not provide a mechanism which allows EPA to completely exempt the No. 9 Boiler just for periods of natural gas combustion and therefore EPA is unable to approve this request.

Secondly, in its submittal, EPC requests that EPA allow compliance with the 30-day rolling averages for scrubber flow, pressure drop, and operating load to be calculated as the arithmetic mean of the previous 720 hours of valid operating data during periods when any wood fuel is combusted in the boiler. Based on your submittal, it is our understanding that the scrubbers are not operated during periods when only natural gas is combusted in the boiler. For this reason, EPA agrees with EPC and approves its request. EPA also agrees with EPC that an alternative oxygen trim set point should be utilized during periods when only natural gas is being combusted based on boiler tuning evaluations.

EPC is also requesting flexibility in the annual (or every 3 years, if applicable) stack testing requirement contained in 40 C.F.R. 63.7515 to allow the boiler to be tested while burning the fuel (or fuel mixtures) with the highest potential emissions. EPA understands that the schedule for combusting wood and/or natural gas is variable and based on operational and economic considerations however the rule allows tests to be conducted up to 13 months apart and already has built in flexibility. To accommodate EPC concerns however, EPA is willing to grant the flexibility to allow EPC to conduct stack tests on an annual calendar basis (or every 3rd year calendar basis), if such flexibility is helpful.

Lastly, EPC in an October 5, 2015, email correspondence to EPA, requested that in the event that EPC should choose to demonstrate No. 9 Boiler compliance with the HCl, mercury, and/or TSM limits through fuel sampling and analysis, that monthly fuel sampling only be required during months when wood fuel is combusted in the No. 9 Boiler. EPA understand and grants this alternative monitoring/sampling request. We further grant EPC request that the provisions at 63.7515(e) allowing for reduced, quarterly sampling would apply when all the analysis results during a 12-month time period are 75% or less of the compliance levels, but only if adequate sampling (at least half of the sampling) is conducted during that 12-month period. Further, we agree that quarterly sampling would only be required during the quarters when wood fuel is combusted at any time during the quarter in the No. 9 boiler.

If you have any further questions please contact Ethan Chatfield of my staff at (312) 886-5112.

Sincerely,

Sara Breneman

Sara Breneman
Chief
Air Enforcement and Compliance Assurance Branch

cc: Chris Hare, District Supervisor
MDEQ/AQD
Saginaw Bay District Office
401 Ketchum Street, Suite B
Bay City, Michigan 48708

CERTIFICATE OF MAILING

I, Loretta Shaffer, certify that I sent a NSPS determination by Certified Mail, Return Receipt Requested, to:

Paula LaFleur
Environmental Manager
Verso Corporation
Escanaba Paper Company
7100 County 426
PO Box 757
Escanaba, Michigan 49829-0757

I also certify that I sent a copy of the Request to Provide Information Pursuant to the Clean Air Act by First Class Mail to:

Chris Hare, District Supervisor
MDEQ/AQD
Saginaw Bay District Office
401 Ketchum Street, Suite B
Bay City, Michigan 48708

On the 13 day of October, 2015

CSMm (for)
Loretta Shaffer,
Administrative Program Assistant
Planning and Administration Section

Certified Mail Receipt Number: 7014 2870 0001 9581 3284

Greenhouse Gas Monitoring Plan

Greenhouse Gas Monitoring Plan

Prepared in Accordance with 40 CFR Part 98

Verso Escanaba, LLC
Escanaba, MI

Prepared by:

All4 Inc.
2393 Kimberton Road
Kimberton, PA 19442

Prepared for:

Verso Escanaba. LLC
March 24, 2020

Revisions: See Table 5-5

Version 2.2

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1. INTRODUCTION

The Verso Escanaba LLC (VE) owns and operates a bleached kraft pulp and paper mill located in Escanaba, Michigan (Escanaba Mill or Mill). The Escanaba Mill is subject to the requirements of U.S. EPA's Mandatory Reporting of Greenhouse Gas (GHG) Rule that is codified at 40 CFR Part 98. The GHG reporting rule applies to facilities such as the Escanaba Mill that emit GHG in excess of 25,000 metric tons of carbon dioxide equivalent ($MTCO_2e$) annually. As of January 1, 2010, the Escanaba Mill is required to keep inventory of its annual GHG emissions, report those emissions, and provide supporting information to U.S. EPA by March 31st of the subsequent year, or any alternate reporting date promulgated by U.S. EPA. Included as part of the GHG reporting rule is a requirement to prepare and maintain a GHG Monitoring Plan.

The GHG Monitoring Plan provides specific information regarding the applicability of the GHG reporting rule to the Escanaba Mill and documents how the Mill manages its GHG inventory and reporting program. A critical component to the GHG Monitoring Plan is the identification of the quality assurance/quality control procedures (QA/QC) to be followed as part of the inventorying and reporting of data. In addition, the GHG Monitoring Plan outlines the specific methodology that the Mill will follow in the calculation of the GHG emissions. The GHG Monitoring Plan includes the following sections:

- Section 2: Escanaba Mill Description and Applicability of 40 CFR Part 98.
- Section 3: Approach to GHG Calculations.
- Section 4: Quality Assurance and Quality Control (QA/QC).
- Section 5: Process of Data Reporting and Archiving.

The Escanaba Mill has prepared this GHG Monitoring Plan to be consistent with the requirements of 40 CFR Part 98. In addition, the Escanaba Mill has reviewed guidance documents prepared by U.S. EPA to respond to industry's questions and comments related to the GHG reporting rule and incorporated the U.S. EPA guidance in the GHG Monitoring Plan as appropriate. The GHG Monitoring Plan also reflects existing Mill QA/QC documents and Mill operating practices. As necessary, the GHG Monitoring Plan will be updated and will continue to be a usable document that can be referenced by the appropriate Mill personnel to ensure that all of the inventorying, reporting, and QA/QC activities that are associated with the GHG reporting rule are completed correctly.

2. ESCANABA MILL DESCRIPTION AND APPLICABILITY OF 40 CFR PART 98

This section of the GHG Monitoring Plan provides a general description of the Escanaba Mill and discusses the applicability of the various subparts of 40 CFR Part 98. The Mill notes that additional operations at the Mill could become subject to subparts of the rule that were not promulgated as of May 30, 2014. The Escanaba Mill will update this section and other sections of the monitoring plan as future rulemaking warrants.

2.1 MILL DESCRIPTION

The Escanaba Mill is an integrated pulp and paper mill as characterized per North American Industrial Classification System (NAICS) 322121. The Mill is located in Escanaba, Delta County, Michigan. At the Escanaba Mill, paper is produced via the bleached kraft process. A list of the Mill's combustion emission units and process emission units that are subject to 40 CFR Part 98 is provided in Table 2-1. A brief description of each emission unit is provided in Section 3.

2.2 RULE APPLICABILITY

The applicability of 40 CFR Part 98 is triggered when the actual annual emissions of GHG gases from the covered sources meets or exceeds a 25,000 $MTCO_2e$ threshold. To assess a facility's GHG emissions against the 25,000 $MTCO_2e$ level, annual emissions of the six (6) GHGs for which calculation methodologies are provided in 40 CFR Part 98 must be summed. The six (6) GHGs are carbon dioxide (CO_2), methane (CH_4), nitrous oxide (N_2O), perfluorocarbons (PFCs), hydrofluorocarbons (HFCs), and sulfur hexafluoride (SF_6). Since each GHG has a different Global Warming Potential (GWP), each GHG must be normalized to the GWP of CO_2. Consequently, CH_4 emissions are multiplied by 25 and N_2O emissions are multiplied by 298 to equate to CO_2 equivalent emissions. PFCs, HFCs, and SF_6 are not expected to be released from any of the relevant VE processes that are addressed in this monitoring plan. Biogenic emissions of CO_2 are not included in the emissions total to determine applicability of 40 CFR Part 98; however, biogenic CO_2 emissions must be reported if the 25,000 $MTCO_2e$ threshold is triggered.

Table 2-1
Process and Combustion Units Subject to 40 CFR Part 98
Verso Escanaba LLC - Escanaba, MI

Table 2-1

Process and Combustion Units Subject to 40 CFR Part 98

Verso Escanaba LLC - Escanaba, MI

Emission Unit	Unit Type	Fuel Type
No. 7 Boiler	Combustion	Natural Gas, Residual Fuel Oil
No. 8 Boiler	Combustion	Natural Gas, Residual Fuel Oil
No. 9 Boiler	Combustion	Bark/Wood Material, Natural Gas, Paper Cores
No. 11 Boiler	Combustion	Bituminous Coal, Bark/Wood Material, Natural Gas, TDF, WWTP Sludge, Pellet Fuel
Recovery Furnace	Process and Combustion	Black Liquor Solids, Natural Gas, Residual Fuel Oil
Lime Kiln	Process and Combustion	Make-up Chemicals, Natural Gas, Residual Fuel Oil
Thermal Oxidizer	Combustion	Natural Gas, NCG's
Miscellaneous Combustion Units	**Combustion**	**Natural Gas, Propane**
EI OMC	Combustion	Natural Gas
E3 OMC	Combustion	Natural Gas
Core Room (3)	Combustion	Natural Gas
Truck Shop	Combustion	Natural Gas
Shipping Rail West End	Combustion	Natural Gas
Shipping Rail East End	Combustion	Natural Gas
E3 Color Bldg Train Shed	Combustion	Natural Gas
E3 East Rail Behind Tech Shop	Combustion	Natural Gas
Large Rolling Equipment Repair Garage (4)	Combustion	Natural Gas
Hummers Hut	Combustion	Natural Gas
Hummers Hut Office Furnace	Combustion	Natural Gas
Construction Offices (3)	Combustion	Natural Gas
Hanging Shop Heaters (4)	Combustion	Natural Gas
Office Area Furnace	Combustion	Natural Gas
Water Heater	Combustion	Natural Gas
Office Area Furnaces (2)	Combustion	Natural Gas
Woodyard Hough Furnace	Combustion	Natural Gas
Woodyard Hough Hot Water Heater	Combustion	Natural Gas
Log Building Hot Water Heater	Combustion	Natural Gas
Log Building Furnace	Combustion	Natural Gas
Fire Hall Hanging Garage Heater	Combustion	Propane
Fire Hall Furnace	Combustion	Propane
Effluent Building Hanging Heater in Washing Garage	Combustion	Natural Gas
Effluent Building Hanging Heaters in Truck Loading Garage (2)	Combustion	Natural Gas
Greenhouse Offices Furnace (2)	Combustion	Natural Gas
Greenhouse (2)	Combustion	Natural Gas
Yard Greenhouse Heaters (2)	Combustion	Natural Gas
Yard Greenhouse Water Heater	Combustion	Natural Gas
C Clarifier Heaters (2)	Combustion	Natural Gas
Water Treatment	Combustion	Natural Gas
Unlined Area Landfill	Landfill	N/A
Phase 1 Landfill	Landfill	N/A
Phase 2 Landfill	Landfill	N/A
Phases 3-4 Landfill	Landfill	N/A
Phase 5 Landfill	Landfill	N/A
Phase 6 Landfill	Landfill	N/A
Phases 7-11 Landfill	Landfill	N/A

There are five (5) specific sections of 40 CFR Part 98 that currently apply to the Escanaba Mill:

- Subpart A - contains general provisions and definitions that apply to all industrial facilities
- Subpart C - includes requirements for combustion sources
- Subpart AA – includes requirements specific to pulp and paper mills
- Subpart TT - includes requirements specific to industrial waste landfills
- Subpart PP – includes requirements specific to suppliers of CO_2

The Escanaba Mill has reviewed 40 CFR Part 98 and determined which sections of the rule apply to the Mill. A summary of the applicable rules is listed in Table 2-2.

In addition, the following subsections have been identified as being potentially applicable to pulp and paper mills: Subpart S (Lime Manufacturing), Subpart U (Miscellaneous Uses of Carbonate), and Subpart II (Industrial Wastewater Treatment). Per §98.190(b), Subpart S does not apply to the Mill since the Lime Manufacturing Plant (LMP) source category does not apply to those LMPs located at a soda pulp mill. Per §98.210(b), Subpart U does not apply to the Mill since the source category does not apply to equipment that uses carbonates or carbonate-containing minerals that are consumed in the production of pulp and paper. Per§98.350(a), Subpart II does not apply to the Escanaba Mill as the wastewater treatment plant does not use any anaerobic processes to treat industrial wastewater at this facility.

In general, the applicability of 40 CFR Part 98 requires that the Mill quantify fossil fuel combustion-related and process-related emissions of CO_2, N_2O, and CH_4. For biomass materials that are combusted or processed, the Mill also needs to calculate the biogenic CO_2, N_2O, and CH_4 emissions. The fossil fuel and biogenic GHG emissions must be reported on a facility-wide basis, as well as on an individual emission unit(s) basis for those sources not electing to take advantage of any reporting alternatives available at §98.36(c). The individual totals of GHG must be speciated (i.e., annual tons of CO_2, N_2O, and CH_4).

Table 2-2
Applicability of 40 CFR Part 98
Verso Escanaba LLC - Escanaba, MI

Table 2-2
Applicability of 40 CFR Part 98
Verso Escanaba LLC - Escanaba, MI

Subpart	Citation	Citation Title
Subpart A - General Provisions	§98.1	Purpose and Scope
	§98.2	Who must report?
	§98.3	What are the general monitoring, reporting, recordkeeping, and verification requirements of this part?
	§98.4	Authorization and Responsibilities of the Designated Representative
	§98.5	How is the report submitted?
	§98.6	Definitions
	§98.7	What standardized methods are incorporated by reference into this part?
	§98.8	What are the compliance and enforcement provisions of this part?
Subpart C - General Stationary Fuel Combustion Sources	§98.30	Definition of the source category
	§98.31	Reporting threshold
	§98.32	GHGs to report
	§98.33	Calculating GHG emissions
	§98.34	Monitoring and QA/QC requirements
	§98.35	Procedures for estimating missing data
	§98.36	Data reporting requirements
	§98.37	Records that must be retained
	§98.38	Definitions
Subpart AA - Pulp and Paper Manufacturing	§98.270	Definition of Source Category
	§98.271	Reporting threshold
	§98.272	GHGs to report
	§98.273	Calculating GHG emissions
	§98.274	Monitoring and QA/QC requirements
	§98.275	Procedures for estimating missing data
	§98.276	Data reporting requirements
	§98.277	Records that must be retained
	§98.278	Definitions
Subpart PP - Suppliers of Carbon Dioxide	§98.420	Definition of Source Category
	§98.421	Reporting threshold
	§98.422	GHGs to report
	§98.423	Calculating CO_2 Supply
	§98.424	Monitoring and QA/QC requirements
	§98.425	Procedures for estimating missing data
	§98.426	Data reporting requirements
	§98.427	Records that must be retained
	§98.428	Definitions
Subpart TT - Industrial Waste Landfills	§98.460	Definition of Source Category
	§98.461	Reporting threshold
	§98.462	GHGs to report
	§98.463	Calculating GHG emissions
	§98.464	Monitoring and QA/QC requirements
	§98.465	Procedures for estimating missing data
	§98.466	Data reporting requirements
	§98.467	Records that must be retained
	§98.468	Definitions

3. APPROACH TO GHG CALCULATIONS

This section of the GHG Monitoring Plan describes the approach that the Mill will follow to determine and report the annual GHG emissions that are due to combustion and process sources. As part of the approach, the Mill has evaluated the ability to streamline the reporting process by using guidance and reporting options provided by U.S. EPA (e.g., aggregation of emission units). The supporting information and the calculation approach that is utilized for reporting purposes under Part 98 are identified in the following subsections.

3.1 GENERAL CO_2 CALCULATION PROCEDURES

The procedures related to determining GHG emissions include calculation methodologies for determining CO_2 emissions as well as CH_4 and N_2O emissions. For CO_2 emissions from combustion sources, there are four (4) different tiers of calculations which can be used: Tier 1, Tier 2, Tier 3, and Tier 4. The use of a particular tier is determined by the size of the emission unit, the type of fuel combusted, the use of a Continuous Emissions Monitoring System (CEMS), and to a degree, the preference of the facility. Different tiers can be used for different fuels on the same emission unit. The approach used to calculate other GHG emissions (i.e., CH_4 and N_2O) is determined based on the tier used to calculate CO_2 emissions. GHG emissions do not need to be calculated for emission units that meet the definition of portable or emergency generators/equipment as defined at 40 CFR §98.6. Additionally, GHG emissions from flares do not need to be considered per Subpart C. A brief description of each tier is provided in the following paragraphs.

The Tier 1 CO_2 calculation methodology uses a default fuel-specific high heating value (HHV), a default fuel-specific CO_2 emission factor, and an annual amount of fuel combusted. The Tier 1 calculation methodology can be used for those fuels with available default HHV and CO_2 values provided the emission unit heat input capacity is less than 250 MMBtu/hr. Tier 1 may be used for solid, gaseous, or liquid biomass fuels in a unit of any size provided default HHV and CO_2 values are listed. However, if HHV values for combusted fuels are routinely obtained at the minimum frequency established in 40 CFR Part 98, or at a greater frequency, then the Tier 1 CO_2 calculation methodology may not be used.

The Tier 2 CO_2 calculation methodology is similar to the Tier 1 approach except that HHV values are those that are specific to the facility or emission unit. The Tier 2 CO_2 calculation methodology can be used for emission units greater than 250 MMBtu/hr only if pipeline quality natural gas or distillate fuel oil is used to fire the large emission units. Tier 2 may also be used for the combustion of any type of fuel in Table C-1 provided the heat capacity of the unit is 250 mmBtu/hr or lower.

The Tier 3 CO_2 calculation methodology is a refinement on Tiers 1 and 2 and incorporates a facility/emission unit-specific measured carbon content of the fuel. The Tier 3 CO_2 calculation methodology may be used for an emission unit regardless of the heat input rating; however, if the emission unit fulfills each of the following six (6) criteria cited at §98.33(b)(4), then the Tier 4 CO_2 calculation methodology, which reflects the use of CEMS measurements, must be used:

1) The unit has a maximum rated heat input capacity greater than 250 MMBtu/hr, or if the unit combusts municipal solid waste and has a maximum rated input capacity greater than 600 tons per day of MSW.

2) The unit combusts solid fossil fuel or MSW as the primary fuel.

3) The unit has operated for more than 1,000 hours in any calendar year since 2005.

4) The unit has installed CEMS that are required either by an applicable Federal or State regulation or the unit's operating permit.

5) The installed CEMS include a gas monitor of any kind or a stack gas volumetric flow monitor, or both and the monitors have been certified, either in accordance with the requirements of 40 CFR Part 75, Part 60 of this chapter, or an applicable State continuous monitoring program.

6) The installed gas or stack gas volumetric flow rate monitors are required, either by an applicable Federal or State regulation or by the unit's operating permit, to undergo periodic quality assurance testing in accordance with either Appendix B to 40 CFR Part 75, Appendix F to 40 CFR Part 60, or an applicable State continuous monitoring program.

3.2 GENERAL CH_4 AND N_2O CALCULATION PROCEDURES

There are no specific calculation tiers associated with determining the annual emissions of CH_4 and N_2O. The calculation tier that is used for calculating emissions of CO_2 determines the equation to be used for calculating emissions of CH_4 and N_2O. In all cases for CH_4 and N_2O, U.S. EPA emission factors are used in the calculations.

3.3 CALCULATION AND REPORTING ALTERNATIVES

U.S. EPA provides calculation and reporting alternatives at §98.36(c) for certain configurations of stationary fuel combustion units. Certain facilities may be able to calculate and report GHG emissions for two (2) or more qualified units on a combined basis if the units are served by the same fuel supply line, share a monitored stack, or are each less than 250 MMBtu/hr. These reporting alternatives are discussed in detail below.

3.3.1 Aggregation of Units Approach

The Aggregation of Units alternative at §98.36(c)(1) may be utilized by facilities containing two (2) or more units, each of which has a maximum rated heat input capacity of 250 MMBtu/hr or less, provided that Tier 4 is not required or elected for any of the units and the units use the same tier for any common fuels combusted. The combustion emission units at the Escanaba Mill that may take advantage of the aggregation of units approach, in lieu of installing or maintaining fuel flow meters for each of the qualified devices, include No. 7 Boiler, No. 1 Coater, No. 3 Coater, the thermal oxidizer, and the miscellaneous small combustion sources. The Escanaba Mill will utilize the aggregation approach for the above listed emission units during periods of firing natural gas and will also utilize the aggregation approach for two (2) small miscellaneous combustion sources during periods of firing propane from tanks. Sources reporting under the Aggregation of Units Approach for Natural Gas Firing are identified as Source ID “GP 001.” Sources reporting under the Aggregation of Units Approach for Propane Firing are identified as Source ID “GP 002.” A summary of the emission units that will report GHG emissions according to the aggregation of units approach along with each unit’s heat input rating are provided in Table 3-1.

The use of the aggregation approach will be in accordance with 40 CFR §98.36(c)(1), which specifies that the same calculation tier shall be used for all aggregation of units sources. Since each of the sources aggregated as GP 001 fire pipeline-quality natural gas and routinely receive HHV data from the local natural gas distribution company at the minimum frequency specified in 40 CFR §98.34(a)(2)(i) (i.e., at least semi-annually), the Tier 2 calculation methodology will be utilized for reporting combined emissions. A summary of the specific equations that will be used to calculate GHG due to firing natural gas in GP 001 and example calculations representative for all GHG are provided in Table 3-2. For the propane-fired sources, the Tier 1 calculation methodology will be used. A summary of the specific equations that will be used to calculate GHG due to firing propane in GP 002 and example calculations representative for all GHG are provided in Table 3-3.

3.3.2 Monitored Common Stack or Duct Configuration

If two (2) or more emission units emit via a common stack or duct and a CEMS is in place to measure the mass of CO_2 emitted, the emission units exhausting into the common stack or duct may be combined. For these sources, the Tier 4 CO_2 calculation methodology applies. At the Escanaba Mill, there are currently no sources that share a common monitored stack which could report CO_2, CH_4, and N_2O emissions per the monitored common stack configuration approach.

3.3.3 Common Pipe Configuration

The common pipe configuration approach at 40 CFR §98.36(c)(3) may be utilized for emission units that are supplied a gaseous or liquid fuel via a common pipe and do not have a requirement to use a Tier 4 CO_2 calculation methodology (see Section 3.1). Although the local gas distribution company delivers natural gas to the Escanaba Mill via a single common pipeline and the readings from the local distribution company fuel billing meter qualify as quality-assured readings per U.S. EPA guidance, the Mill has elected to report qualified natural gas-fired sources according to the Aggregation of Units approach in lieu of the Common Pipe Configuration approach.

3.4 EMISSIONS UNIT INFORMATION

U.S. EPA provides calculation methodologies for stationary fuel combustion units at §98.33, for pulp and paper manufacturing process sources at §98.273, and for industrial waste landfills at §98.463. A list of the Mill's combustion emission units and process emission units that are subject to 40 CFR Part 98 was provided in Table 2-1. These emissions units are discussed in detail below.

3.4.1 No. 7 Boiler

No. 7 Boiler is fired with natural gas and residual fuel oil and has a heat input rating of 154 MMBtu/hr. Calculation of GHG emissions due to firing natural gas will be performed according to Tier 2 CO_2 calculation methodology under the Aggregation of Units Approach described in Section 3.3.1, for Source GP 001. A summary of the specific equations that will be used to calculate GHG for aggregated units along with example calculations is provided in Table 3-4.

No. 7 Boiler does not currently fire residual fuel oil, however, pursuant to the Escanaba Mill's Title V Operating Permit, the Mill is permitted to burn this fuel. **If the Mill decides to burn residual fuel oil in the future, the residual fuel oil meter will be calibrated in accordance with all GHG regulations.** Tier 3 CO_2 calculation methodology will be required for determining CO_2 emissions for residual fuel oil fired in No. 7 Boiler because the Escanaba Mill routinely performs fuel sampling and analysis for HHV for the Tier 3 calculations required for the No. 8 Boiler (§98.33(b)(1)(iv)). (A summary of the specific equations that will be used should the Mill decide to fire residual fuel oil in the No. 7 Boiler, along with example calculations for all GHG are provided in Table 3-4.

3.4.2 No. 8 Boiler

No. 8 Boiler has a heat input rating of 594 MMBtu/hr and is fired with natural gas and residual fuel oil. No. 8 Boiler meets the criteria for using the Tier 2 CO_2 calculation methodology when firing natural gas. No. 8 Boiler meets the criteria for using the Tier 3 CO_2 calculation methodology when firing residual fuel oil. The volume of each fuel used by No. 8 Boiler is measured by fuel-specific calibrated flow meters at the unit. A summary of the specific equations that will be used to calculate GHG for natural gas and residual fuel oil firing for No. 8 Boiler along with example calculations are provided in Table 3-5.

3.4.3 No. 9 Boiler

No. 9 Boiler has a heat input rating of 360 MMBtu/hr and is fired with natural gas and bark/wood material. No. 9 Boiler also has the potential to fire paper cores as a fuel source; however, at this time the Escanaba Mill does not utilize this firing scenario. No. 9 Boiler meets the criteria for using the Tier 2 CO_2 calculation methodology when firing natural gas. Although 98.33(b)(1)(iii) would allow Tier 1 to be used for bark/wood material, the Tier 2 CO_2 calculation methodology must be utilized for bark/wood material firing due to the frequency of fuel sampling and analysis for HHV, per §98.33(b)(1)(iv). The volume of natural gas used by No. 9 Boiler is measured by a fuel-specific flow meter at the unit. The Escanaba Mill tracks bark/wood material used through facility records. The biogenic CO_2 emissions from bark/wood material firing are calculated per 40 CFR §98.33(e)(2). A summary of the specific equations that will be used to calculate GHG emissions for the No. 9 Boiler along with example calculations are provided in Table 3-6.

3.4.4 No. 11 Boiler

No. 11 Boiler has a heat input rating of 1,040 MMBtu/hr and is fired with natural gas, bituminous coal, tire-derived fuel (TDF), wastewater treatment plant (WWTP) sludge, bark/wood material, and pellet fuel. Depending upon availability, operational, and economic considerations, not all of these fuels may be used at any given time.

No. 11 Boiler meets the criteria for using Tier 2 CO_2 calculation methodology when firing natural gas, bark/wood waste material, and WWTP sludge. The Tier 3 CO_2 calculation methodology will be used when firing bituminous coal and TDF. Tier 1 will be utilized for Pellet fuel combustion as long as the pellet fuel provides less than 10 percent of the boiler's annual heat input. The biogenic CO_2 emissions from bark/wood material firing are calculated per 40 CFR §98.33(e)(2). A summary of the specific equations that will be used to calculate GHG emissions for No. 11 Boiler in 2010 along with example calculations are provided in Table 3-7.

The volume of natural gas used by No. 11 Boiler is measured by a fuel-specific flow meter at the unit. The Escanaba Mill tracks bark/wood material, bituminous coal, TDF, WWTP sludge, and pellet fuel used through facility records.

3.4.5 Thermal Oxidizer

The Mill operates one (1) 20 MMBtu/hr natural gas-fired thermal oxidizer to combust non-condensable gases (NCGs) and stripper off gases (SOGs) that are produced throughout the pulping process. U.S. EPA has provided guidance that allows for the exemption of NCGs and SOGs from the requirement to calculate and report GHG emissions. However, the GHG emissions from natural gas combusted by the thermal oxidizer must still be considered. The thermal oxidizer is qualified to utilize the Aggregation of Units approach in reporting the unit's GHG emissions due to firing natural gas. A summary of the specific equations that will be used to calculate GHG for aggregated units firing natural gas (GP 001) along with example calculations are provided in Table 3-2.

3.4.6 Miscellaneous Heaters and Boilers

There are many small combustion sources at the Escanaba Mill for which GHG emissions will be calculated. Since all of these sources have a heat input less than 250 MMBtu/hr, they are qualified to utilize the Aggregation of Units approach in reporting the unit's GHG emissions for firing natural gas (GP 001) and for propane (GP 002). A summary of the specific equations that will be used to calculate GHG for aggregated units for natural gas firing, along with example calculations for all GHG are provided in Table 3-2. A summary of the specific equations that will be used to calculate GHG for aggregated units for propane firing, along with example calculations for all GHG are provided in Table 3-3. A summary of the specific equations that will be used for the miscellaneous sources when firing residual fuel oil along with example calculations are provided in Table 3-8.

3.5 SUBPART AA PULP AND PAPER CALCULATION METHODOLOGY

U.S. EPA provides calculation methodologies for pulp and paper manufacturing process sources in 40 CFR Subpart AA at §98.273. The Mill adds soda ash (Na_2CO_3) as a make-up chemical. This triggers the requirements associated with 40 CFR §98.273(d). At the Escanaba Mill, the Recovery Furnace and Lime Kiln are the two (2) emission units that are affected under 40 CFR Subpart AA.

3.5.1 Lime Kiln

The Lime Kiln fires natural gas and residual fuel oil and has a maximum rated heat input capacity of 75 MMBtu/hr. Per the requirements of Subpart AA, the Escanaba Mill will use a Tier 2 CO_2 calculation methodology to calculate natural gas emissions and the corresponding emission calculation methodology for CH_4 and N_2O. A quality assured flow meter is used to measure the amount of residual fuel oil fired in the Lime Kiln. Tier 3 CO_2 calculation methodology is used to calculate fuel oil emissions and the corresponding emission calculation methodology for CH_4 and N_2O. A summary of the specific equations that will be used for the Lime Kiln along with example calculations are provided in Table 3-9.

3.5.2 Carbonate Make-up Chemical Usage

Under Subpart AA, the amount of carbonate make-up chemical usage per year must be determined. The Mill adds soda ash (Na_2CO_3) in the lime kiln as a make-up chemical. The amount of soda ash added is tracked through facility records by accounting under 1510108179 - 100903181. Note that soda ash is also used in the digester, washing, and bleaching areas but this soda ash is not used as carbonate make-up chemical. This soda ash is tracked under 1510108181 – 100903181 but is not used to determine GHG emissions. A summary of the specific equations that will be used to calculate emissions of GHG due to carbonate make-up chemical usage is provided in Table 3-10.

3.5.3 Chemical Recovery Furnace

The Chemical Recovery Furnace at the Escanaba Mill fires spent black liquor solids (BLS) to recover pulping chemicals. For start-up, shut-down, and load stabilization, the Chemical Recovery Furnace fires residual fuel oil and natural gas. All of the CO_2 emissions from BLS firing are biogenic. Per the requirements of Subpart AA, the Escanaba Mill will use facility records and a Tier 2 CO_2 calculation for Natural Gas and a Tier 3 CO_2 calculation for Residual Fuel Oil to calculate fossil fuel-related CO_2 emissions and the corresponding methodology for CH_4 and N_2O. Quality assured flow meters are used to measure the amount BLS fired in the Chemical Recovery

Furnace. A summary of the specific calculation tiers and equations that will be used for the Chemical Recovery Furnace along with example calculations are provided in Table 3-11.

3.6 SUBPART PP SUPPLIERS OF CARBON DIOXIDE

Subpart PP applies to facilities with production process units that capture a CO_2 stream for the purposes of supplying CO_2 for a commercial application. The Escanaba Mill leases a portion of its property to a precipitated calcium carbonate (PCC) company. The PCC plant is not under common ownership or common control with the Mill operations. Equipment and processes related to the PCC plant are owned and operated by Omya Inc. The PPC plant receives process exhaust gas from the Escanaba Mill Lime Kiln, which contains CO_2. The PCC Plant captures and utilizes the CO_2 to produce PCC. The PCC is then supplied to the Mill and used in additional processes. Since under this arrangement it can be interpreted that the Mill generates a CO_2 stream and transfers at least part of it to a commercial application (i.e., PCC production), Subpart PP applies to the Mill's transfer of Lime Kiln exhaust to the PPC plant.

The appropriate monitoring will be conducted in accordance with Subpart PP. A quality assured volumetric flow sensor is used to measure the volumetric flow rate of the exhaust containing CO_2 transferred to the PPC Plant. VE will quantify the mass of CO_2 captured in accordance with §98.423(a) using Equation PP-2. Per Subpart PP, volumetric flow measurements will be corrected to standard industry temperature and pressure conditions to quantify the mass of CO_2 captured. Standard industry temperature and pressure conditions for purposes of this subpart are defined pursuant to 40 CFR Part 98.424(c) as follows: standard cubic meters at a temperature of 60 degrees Fahrenheit and at an absolute pressure of 1 atmosphere. VE does not import or export CO_2 in containers, so §98.423(b) does not apply. A summary of the specific equations that will be used to calculate GHG emissions from the CO_2 captured along with example calculations are provided in Table 3-9.

3.7 SUBPART TT INDUSTRIAL WASTE LANDFILLS

U.S. EPA provides calculation methodologies for industrial waste landfills in 40 CFR Subpart TT at §98.463. At the Escanaba Mill, there are four (4) landfill units that are affected under 40 CFR

Subpart TT: an unlined area, Phase 1, Phase 2, and a landfill unit consisting of Phases 3 to 11. Phases 1 through 11 are classified as Type III Industrial Waste Landfills by the Michigan EGLE. These four (4) landfill units are equipped with passive vents, and various waste streams feed into them. These waste streams include ash from the No. 11 mixed fuel boiler; ash from the No. 9 wood and natural gas boiler; wastewater treatment plant sludge (primary and secondary combined); lime wastes from the recovery system including: green lime, white lime, grits, and dregs; wood waste, pulp and paper; construction and demolition waste; asbestos; and general mill garbage. About 300 cubic yards are disposed of in the active units daily, and quantities are measured by the number of truckloads. The Mill is not required to provide a daily cover, per the facility's plan of operations. Permanent cover is constructed once the phases are full; and partial cover is applied every five (5) to ten (10) years. A summary of the specific equations that will be used to calculate GHG emissions from each landfill unit along with example calculations are provided in Table 3-12.

3.7.1 Unlined Area

The unlined area was opened and began accepting waste in the early 1900's. It has a capacity of approximately 2.1 million cubic yards and spans approximately 52 acres. The unlined area stopped accepting waste in 1992, and in 2002 the landfill unit was closed. The Mill is not required to provide a daily cover, per the facility's plan of operations. Post closure care will be conducted through January 2024.

3.7.2 Phase 1

Phase 1 was constructed in 2002 and is currently closed. It has a double-composite liner with leachate collection and spans 7.9 acres. The Phase 1 unit has a capacity of 346,650 cubic yards and closed in 2012. The waste was disposed in the active area on a daily basis and measured by number of truckloads hauled. The Mill is not required to provide a daily cover, per the facility's plan of operations.

3.7.3 Phase 2

Phase 2 was constructed in 1991 and was closed in 1995. The landfill unit has a double-composite liner with leachate collection and spans 9.3 acres. The Phase 2 unit has a capacity of 400,000 cubic yards and does not require daily cover, per the facility's plan of operations. Post closure care will be conducted through April 2025.

3.7.4 Phases 3 through 11

Phases 3 through 11 are contiguous cells with varying characteristics and all were or will be constructed with a double-composite liner and leachate collection.

3.7.4.1 Phases 3 through 11

Phases 3 and 4 were constructed in 1992 were closed in 2015. Their combined capacity is 921,000 cubic yards spanning 16.6 acres.

3.7.4.2 Phase 5

Phase 5 is open and was constructed in year 2000 and is expected to close between the years 2014 and 2020. This cell has a capacity of 902,200 cubic yards covering 9.4 acres.

3.7.4.3 Phase 6

Phase 6 was constructed in 2011 and was licensed for operation in 2012. This cell covers eight (8) acres with a capacity of 851,800 cubic yards. Its anticipated closure is between the year 2022 and 2030.

3.7.4.4 Phase 7

Phase 7 was constructed in 2018 and was licensed for operation in 2019. This cell covers eight (8.2) acres with a capacity of 851,800 cubic yards. Its anticipated closure is between the year 2029 and 2035.

3.7.4.5 Phases 8 through 11

Phases 8 through 11 are unconstructed with a potential capacity of 3,532,900 cubic yards. Phase 11 has an estimated closure between the years 2055 and 2075.

3.8 EXEMPT SOURCES AND FUELS

The Escanaba Mill has identified several emissions units and "fuels" that are not required to be part of the GHG reporting program. Currently, the GHG rule exempts emission units that qualify as portable and as emergency back-up units. The criteria that must be met in order for a unit to be classified as "portable" or as "emergency back-up" are listed in Table 3-12.

The following subsections have been identified as being potentially applicable to pulp and paper mills: Subpart S (Lime Manufacturing), Subpart U (Miscellaneous Uses of Carbonate), and Subpart II (Industrial Wastewater Treatment). Per §98.190(b), Subpart S does not apply to the Mill since the Lime Manufacturing Plant (LMP) source category does not apply to those LMPs located at a soda pulp mill. Per §98.210(b), Subpart U does not apply to the Mill since the source category does not apply to equipment that uses carbonates or carbonate-containing minerals that are consumed in the production of pulp and paper. Per§98.350(a), Subpart II does not apply to the Escanaba Mill as the wastewater treatment plant does not use any anaerobic processes to treat industrial wastewater at this facility.

The GHG reporting rule does not require GHG emissions to be calculated for certain types of fuels. Guidance provided by U.S. EPA exempted non-condensable gases (NCGs), stripper off gases (SOGs), and concentrated vent gases (CVGs) from being included as fuels for which GHG emissions must be calculated. In addition, fuels not listed in Table C-1 of 40 CFR Part 98 that meet both of the following criteria do not need to be included:

- The fuel is fired in a combustion unit not required to utilize Tier 4 methodology, and
- For Tier 3 units, the fuel supplies less than 10% of the annual heat input to either the emissions unit or a group of emission units that are reporting according to the a common pipe configuration approach.

3.9 PROCEDURES FOR REPLACING MISSING DATA

The Escanaba Mill will use source-specific procedures for replacing missing data. Specifically, the requirements of 40 CFR §98.35 will address missing data related to stationary fuel combustion, §98.275 will address missing data associated with pulp and paper manufacturing, and §98.465 will address missing data associated with industrial waste landfills. The Escanaba Mill recognizes that missing data are often due to uncontrollable circumstances and not necessarily a failure on the part of the Mill. The missing data procedures apply to required parameters that are subject to some form of quality assurance and are used in the computation of GHG emissions.

U.S. EPA requires information to justify and explain the circumstances involving the replacement of missing data. The Mill will replace missing data in accordance with the following sections.

3.9.1 Missing Data for Stationary Fuel Combustion (Subpart C)

The missing data requirements for stationary fuel combustion apply to two (2) general types of emission units, emission units subject to or required to report following the Acid Rain Program (ARP) and emission units subject to CO_2 calculation methodologies listed at 40 CFR §98.33(a)(1)-(4). All emission units reporting GHG are subject to the missing data procedures related to 40 CFR §98.33(a)(1) through (4).

Emission units at the Escanaba Mill will use a combination of Tier 1, Tier 2, or Tier 3 CO_2 calculation methodology. The potential missing data for Tier 1, Tier 2 and Tier 3 sources are limited to High Heat Value (HHV), fuel flow rates (natural gas and liquid fuels), carbon content, and mass of solid fuels.

<u>Missing Fuel Usage Data (Subpart C)</u>

The Mill uses fuel usage data for natural gas, residual fuel oil, TDF, WWTP sludge, bark/wood material, pellet fuel, and coal as part of the approach to calculate emissions under Tiers 1, 2, and 3 calculation methodologies. For missing fuel usage data, the Mill will substitute missing data with the best available estimate of fuel usage based on all available process data. The Mill will document and retain records of the procedures used for all such estimates.

Missing HHV Data (Subpart C)

To perform Tier 2 and other calculations, the Mill receives HHV data minimally as follows:

- Natural Gas — Semi-annually
- Bark/Wood Material — Weekly Sample for Monthly Composite
- WWTP Sludge — Weekly Sample for Monthly Composite
- TDF — Weekly Sample for Monthly Composite

As specified in §98.33, if the results of fuel sampling are received less frequently than monthly, then the annual average HHV for that fuel shall be calculated as the arithmetic average HHV for all values for the year (including valid samples and substitute data values under §98.35). If the results of fuel sampling are received monthly, the Mill shall use equation C-2b to determine an annual average HHV for that fuel. If the results of fuel sampling are received more frequently than monthly, the Mill shall use Equation C-2b with a monthly arithmetic average HHV multiplied by the specific monthly fuel usage (in units of mass or volume) and then divided by the annual fuel usage (in units of mass or volume).

For each fuel specific HHV that is missing, an arithmetic average will be used as a replacement value. The arithmetic average will be calculated using the quality-assured HHV value immediately preceding and immediately following the missing data incident. If a quality-assured “after” value has not been obtained by the time that the GHG emissions report is due, the quality-assured “before” value for missing data substitution or the best available estimate of the parameter, based on all available process data (e.g., electrical load, steam production, operating hours) shall be used. If no quality-assured “before” value is available prior to the missing data incident, the substitute data value shall be the first quality-assured value obtained after the missing data period.

Missing Carbon Content Data (Subpart C)

To perform Tier 3 and other calculations, the Mill receives carbon content data minimally as follows:

- Coal — Per lot from Supplier Provided Analysis
- TDF — Weekly Sample for Monthly Composite
- Fuel Oil — Monthly Sample

As specified in §98.33, if the results of any fuel sampling of carbon content required under Part 98 are received less frequently than monthly, then the annual average value for that parameter shall be calculated as the arithmetic average value for all values for the year (including valid samples and substitute data values under §98.35). If the results of the parameter are received monthly, the Mill shall use equation C-2b to determine an annual average value. If results are received more frequently than monthly, the Mill shall use Equation C-2b with a monthly arithmetic average value multiplied by the specific monthly usage and then divided by the annual fuel usage.

For each required measurement of carbon content that is missing, an arithmetic average will be used as a replacement value. The arithmetic average will be calculated using the quality-assured carbon content or molecular weight value immediately preceding and immediately following the missing data incident. If a quality-assured "after" value has not been obtained by the time that the GHG emissions report is due, the quality-assured "before" value for missing data substitution or the best available estimate of the parameter, based on all available process data (e.g., electrical load, steam production, operating hours) shall be used. If no quality-assured "before" value is available prior to the missing data incident, the substitute data value shall be the first quality-assured value obtained after the missing data period.

3.9.2 Missing Data for Pulp and Paper Manufacturing (Subpart AA)

In addition to the parameters of fuel usage, HHV, carbon content, concentration of CO_2, and stack gas flow required under Subpart C, emission units at the Escanaba Mill that are regulated under 40 CFR Part 98, Subpart AA will also use black liquor analyses and carbonate make-up chemical purchase records to determine process-related GHG emissions. The potential for missing data to affect the GHG emission calculations from emission units at sources regulated under Subpart AA is relatively low. Therefore, the Mill has developed limited missing data procedures relative to Subpart AA emission units.

Missing Chemical Recovery Furnace Data (Subpart AA)

The Mill will follow the missing data procedures outlined in Subpart C for parameters related to the firing of fossil-fuel in the Chemical Recovery Furnace, and will follow the missing data procedures outlined in Subpart AA for parameters used to calculate biogenic emissions due to the firing of black liquor.

The Mill utilizes an online measurement system to measure the flow of black liquor fired in the Chemical Recovery Furnace. If a value related to the amount of liquor fired is missing, the Mill will substitute the lesser value of either the maximum mass or flow rate of the Chemical Recovery Furnace, or the maximum mass or flow rate that the measurement system can measure as specified in 40 CFR 98.275(b).

The Mill analyzes at least one (1) sample of black liquor for HHV annually, and additional analyses will likely be performed at the discretion of the Mill. As long as the one (1) required analysis is performed annually, there will be no need to consider missing analytical data for black liquor HHV. If there is missing data, refer to 40 CFR 98.275(a).

Missing Chemical Makeup Data (Subpart AA)

The Mill uses purchase records to determine the mass of carbonate make-up chemicals that are added to the Mill's pulping process. The possibility of an occurrence involving a missing purchase record involving carbonate is low as backup purchasing records are maintained by the Mill and the Mill's vendors. If records are missing, however, the Mill will follow the procedures for missing data specified in 40 CFR 98.275(c).

3.9.3 Missing Data for Suppliers of Carbon Dioxide (Subpart PP)

The missing data procedures of Subpart PP generally require that the most appropriate value be substituted using a quarterly value measured during another quarter. The Mill will follow the procedures for estimating missing data found at 40 CFR §98.425 in order to determine quarterly volumetric flow of CO_2, the concentration of the CO_2 stream, or the density of the CO_2 stream when the applicable quality assurance procedures of this subpart cannot be followed.

3.9.4 Missing Data for Industrial Waste Landfills (Subpart TT)

Subpart TT does not provide any missing data procedures for waste disposal measurements.

3.10 INFORMATION TO BE REPORTED ANNUALLY

The Escanaba Mill will provide an annual summary of GHG emissions to U.S. EPA no later than March 31st of each calendar year, or alternate reporting date promulgated by U.S. EPA, for GHG emissions associated with the previous calendar year. The information to be included in each annual report is specified at 40 CFR §98.3(c), §98.36, §98.276, §98.466 for Subparts A, C, AA, and TT respectively, and summarized in the Facility's GHG Calculation Spreadsheet Tool, which is designed according to the specifications of this Monitoring Plan and maintained separately.

Table 3-1
Sources Reporting GHG Emissions According to the Aggregation of Units Approach
Verso Escanaba LLC - Escanaba, MI

Table 3-1

Sources Reporting GHG Emissions According to the Aggregation of Units Approach

Verso Escanaba LLC - Escanaba, MI

Aggregation of Units	Source Name	Fuel Fired [a]	Maximum Rated Heat Capacity (MMBtu/hr)	CO_2 Calculation Tier
GP 001	No. 7 Boiler	Natural Gas	154 MMBtu/hr	Tier 2
	Thermal Oxidizer		~20 MMBtu/hr	Tier 2
	Miscellaneous Combustion Units [b]		~ 86 MMBtu/hr total	Tier 2
GP 002	Miscellaneous Combustion Units [b]	Propane	~ 0.5 MMBtu/hr total	Tier 1

[a] The Mill will also independently calculate and report GHG emissions resulting from firing other fuels in the combustion sources.

[b] Reference the complete list of Miscellaneous Combustion Units in Table 2-1.

Table 3-2
Aggregation of Units (GP 001) for Natural Gas Firing GHG Calculation Approach and Sample Calculations
Verso Escanaba LLC - Escanaba, MI

Table 3-2
Aggregation of Units (GP 001) for Natural Gas Firing GHG Calculation Approach and Sample Calculations [(a)]
Verso Escanaba LLC - Escanaba, MI

Cumulative Heat Input:	~260 MMBtu/hr	**Aggregation Approach:**	Yes (Natural Gas)	**CO_2 CEM Operating:**	No	**Sorbent Used:**	No
Common Pipe Approach:	No	**Common Stack:**	No	**Biogenic Emissions:**	No	**Responsible Personnel:**	See Table 5-2

GHG Calculation Approach

Fuel	Usage Units	Minimum Frequency of HHV Analysis	Minimum Frequency of Carbon Content Analysis	Biogenic	CO_2 Calculation Tier	CO_2 Calculation Equation	CH_4/N_2O Calculation Equation
Natural Gas	standard cubic feet	Semi-Annually	N/A	No	2	C-2a	C-9a

GHG Sample Calculations

Equation	Sample Calculation
C-2a	GP 001 CO_2 (metric tons) = $(1x10^{-03})$ x (annual volume of natural gas fired in GP 001) x (HHV per Eq. C-2b) x (Table C-1 Emission Factor)
C-2b	$HHV_{(annual)} = \frac{\sum_{i=1}^{n}((HHV)_i \times (Fuel)_i)}{\sum_{i=1}^{n}(Fuel)_i}$ Where: $(HHV)_{annual}$ = Weighted annual average HHV of the fuel (MMBtu per mass or volume) $(HHV)_i$ = HHV of the fuel, for month "i" $(Fuel)_i$ = Mass or volume of the fuel combusted during month "i" n = Number of months in the year that fuel is burned in the unit
C-9a	GP 001 CH_4 (metric tons) = $(1x10^{-03})$ x (annual volume of natural gas fired in GP 001) x (HHV per Eq. C-2b) x (Table C-2 Emission Factor) GP 001 N_2O (metric tons) = $(1x10^{-03})$ x (annual volume of natural gas fired in GP 001) x (HHV per Eq. C-2b) x (Table C-2 Emission Factor)
Other	Annual Volume of NatGas Fired in GP 001 (scf) = (Sum of Monthly Natural Gas Billing Meter Readings) - [(Natural Gas Fired by No. 8 Boiler) + (Natural Gas Fired by No. 9 Boiler) + (Natural Gas Fired by No. 11 Boiler) + (Natural Gas Fired by Recovery Furnace) + (Natural Gas Fired by Lime Kiln)]

[(a)] GP 001 represents all natural gas-fired sources at the Mill, excluding No. 8 Boiler, No. 9 Boiler, No. 11 Boiler, the Recovery Furnace, and the Lime Kiln.
[(b)] The natural gas company will supply HHV data to the Mill on a semi-annual basis, with at least four (4) months between analysis.

Table 3-3
Aggregation of Units (GP 002) for Propane Firing GHG Calculation Approach and Sample Calculations
Verso Escanaba LLC - Escanaba, MI

Table 3-3
Aggregation of Units (GP 002)[(a)] for Propane Firing GHG Calculation Approach and Sample Calculations [(b)]
Verso Escanaba LLC - Escanaba, MI

Heat Input: ~0.5 MMBtu/hr	**Aggregation Approach:** Yes (Propane)	**CO_2 CEM Operating:** No	**Sorbent Used:** No
Common Pipe Approach: No	**Common Stack:** No	**Biogenic Emissions:** No	**Responsible Personnel:** See Table 5-2

GHG Calculation Approach

Fuel	Usage Units	Minimum Frequency of HHV Analysis	Minimum Frequency of Carbon Content	Biogenic	CO_2 Calculation Tier	CO_2 Calculation Equation	CH_4/N_2O Calculation Equation
Propane	gallons	Not required for Tier 1 calculations as default value will be used from 40 CFR 98, Subpart C, Table C-1.	N/A	No	1	C-1	C-8

GHG Sample Calculations

Equation	Sample Calculation
C-1	$CO_{2(Propane)}$ (metric tons) = ($1x10^{-03}$) x (annual volume of Propane fired) x (Table C-1 default HHV) x (Table C-1 Emission Factor)
C-8	$CH_{4(Propane)}$ (metric tons) = ($1x10^{-03}$) x (annual volume of Propane fired) x (Table C-1 default HHV) x (Table C-2 Emission Factor) $N_2O_{(Propane)}$ (metric tons) = ($1x10^{-03}$) x (annual volume of Propane fired) x (Table C-1 default HHV) x (Table C-2 Emission Factor)

[(a)] GP 002 represents two (2) propane-fired sources at the Mill, refer to Table 2-1 for a list of Miscellaneous Combustion Sources.
[(b)] GHG emissions associated with the firing of natural gas in Miscellaneous Combustion Sources are accounted for under Aggregation of Units ID GP 001. Refer to Table 3-2A.

Table 3-4
No. 7 Boiler GHG Calculation Approach and Sample Calculations for Residual Fuel Oil
Verso Escanaba LLC - Escanaba, MI

Table 3-4
No. 7 Boiler GHG Calculation Approach and Sample Calculations for Residual Fuel Oil
Verso Escanaba LLC - Escanaba, MI

Heat Input:	154 MMBtu/hr	**Aggregation Approach:**	Yes (Natural Gas)[(a)]	**CO_2 CEM Operating:**	No	**Sorbent Used:**	No
Common Pipe Approach:	No	**Common Stack:**	No	**Biogenic Emissions:**	No	**Responsible Personnel:**	See Table 5-2

GHG Calculation Approach

Fuel	Usage Units	Minimum Frequency of HHV Analysis	Minimum Frequency of Carbon Content	Biogenic	CO_2 Calculation Tier	CO_2 Calculation Equation	CH_4/N_2O Calculation Equation
Residual Fuel Oil	gallons	Per Fuel Lot	Per Fuel Lot	No	3	C-4	C-8

(a) GHG emissions associated with the firing of natural gas in the No. 7 Boiler are accounted for under Aggregation of Units ID GP 001. Refer to Table 3-2A for equations.

GHG Sample Calculations

Equation	Sample Calculation
C-4	No. 7 Boiler $CO_{2\ (Fuel\ Oil)}$ (metric tons) = (44/12) x (annual volume of residual oil fired in No. 7 Boiler) x (annual average carbon content of residual oil) x (0.001)
C-8	No. 7 Boiler $CH_{4(fuel\ oil)}$ (metric tons) = ($1x10^{-03}$) x (annual volume of fuel oil fired) x (Table C-1 default HHV) x (Table C-2 Emission Factor) No. 7 Boiler $N_2O_{(fuel\ oil)}$ (metric tons) = ($1x10^{-03}$) x (annual volume of fuel oil fired) x (Table C-1 default HHV) x (Table C-2 Emission Factor)

Table 3-5
No. 8 Boiler GHG Calculation Approach and Sample Calculations
Verso Escanaba LLC - Escanaba, MI

Table 3-5
No. 8 Boiler GHG Calculation Approach and Sample Calculations
Verso Escanaba LLC - Escanaba, MI

Heat Input: 594 MMBtu/hr
Common Pipe Approach: No
Aggregation Approach: No
Common Stack: No
CO_2 CEM Operating: No
Biogenic Emissions: No
Sorbent Used: No
Responsible Personnel: See Table 5-2

GHG Calculation Approach

Fuel	Usage Units	Minimum Frequency of HHV Analysis	Minimum Frequency of Carbon Content	Biogenic	CO_2 Calculation Tier	CO_2 Calculation Equation	CH_4/N_2O Calculation Equation
Residual Fuel Oil	gallons	Per Fuel Lot	Per Fuel Lot	No	3	C-4	C-8
Natural Gas	cubic feet	Semi-Annually	N/A	No	2	C-2a	C-9a

GHG Sample Calculations

Equation	Sample Calculation
C-2a	No. 8 Boiler $CO_{2(Natural\ Gas)}$ (metric tons) = ($1x10^{-03}$) x (annual volume of natural gas fired in No. 8 Boiler) x (HHV per Eq. C-2b) x (Table C-1 Emission Factor)
C-2b	$HHV_{(annual)} = \frac{\sum_{i=1}^{n}((HHV)_i \times (Fuel)_i)}{\sum_{i=1}^{n}(Fuel)_i}$ Where: $(HHV)_{annual}$ = Weighted annual average HHV of the fuel (MMBtu per mass or volume) $(HHV)_i$ = HHV of the fuel, for month "i" $(Fuel)_i$ = Mass or volume of the fuel combusted during month "i" n = Number of months in the year that fuel is burned in the unit
C-4	No. 8 Boiler $CO_{2\ (Fuel\ Oil)}$ (metric tons) = (44/12) x (annual volume of residual oil fired in No. 8 Boiler) x (annual average carbon content of residual oil) x (0.001)
C-8	No. 8 Boiler $CH_{4(fuel\ oil)}$ (metric tons) = ($1x10^{-03}$) x (annual volume of fuel oil fired) x (Table C-1 default HHV) x (Table C-2 Emission Factor) No. 8 Boiler $N_2O_{(fuel\ oil)}$ (metric tons) = ($1x10^{-03}$) x (annual volume of fuel oil fired) x (Table C-1 default HHV) x (Table C-2 Emission Factor)
C-9a	No. 8 Boiler $CH_{4(Natural\ Gas)}$ (metric tons) = ($1x10^{-03}$) x (annual volume of natural gas fired in No. 8 Boiler) x (annual HHV per Eq. C-2b) x (Table C-2 Emission Factor) No. 8 Boiler $N_2O_{(Natural\ Gas)}$ (metric tons) = ($1x10^{-03}$) x (annual volume of natural gas fired in No. 8 Boiler) x (annual HHV per Eq. C-2b) x (Table C-2 Emission Factor)

Table 3-6
No. 9 Boiler GHG Calculation Approach and Sample Calculations
Verso Escanaba LLC - Escanaba, MI

Table 3-6
No. 9 Boiler GHG Calculation Approach and Sample Calculations
Verso Escanaba LLC - Escanaba, MI

Heat Input: 360 MMBtu/hr
Common Pipe Approach: No
Aggregation Approach: No
Common Stack: No
CO_2 CEM Operating: No
Biogenic Emissions: Yes
Sorbent Used: No
Responsible Personnel: See Table 5-2

GHG Calculation Approach

Fuel	Usage Units	Minimum Frequency of HHV Analysis	Minimum Frequency of Carbon Content	Biogenic	CO_2 Calculation Tier	CO_2 Calculation Equation	CH_4/N_2O Calculation Equation
Bark/Wood Material [a]	short tons	Weekly Sampling for Analysis of Monthly Composite	N/A	Yes	2	C-2a	C-9a
Natural gas	cubic feet	Semi-Annually	N/A	No	2	C-2a	C-9a
Paper Cores[a], [b]	short tons	N/A	N/A	No	1	C-1	C-8

[a] Wood waste and paper mill sludge are considered "Wood and Wood Residuals" on Table C-1 of 40 CFR Part 98, Subpart C, and are considered "Biomass Fuel" on Table C-2 of 40 CFR Part 98, Subpart C.
[b] The Mill has the capability to fire paper cores, however at this time, this fuel is not fired.

GHG Sample Calculations

Equation	Sample Calculation
C-2a	No. 9 Boiler $CO_{2(per\ fuel\ type)}$ (metric tons) = ($1x10^{-03}$) x (annual mass or volume of fuel fired in No. 9 Boiler) x (HHV per Eq. C-2b) x (Table C-1 Emission Factor) for Natural Gas and Bark/Wood No. 9 Boiler Biogenic CO_2 (metric tons) = (1x10-03) x (annual mass or volume of bark/wood fired in No. 9 Boiler) x (HHV per Eq. C-2b) x (Table C-1 Emission Factor)
C-2b	$HHV_{(annual)} = \frac{\sum_{i=1}^{n}((HHV)_i \times (Fuel)_i)}{\sum_{i=1}^{n}(Fuel)_i}$ Where: $(HHV)_{annual}$ = Weighted annual average HHV of the fuel (MMBtu per mass or volume) $(HHV)_i$ = HHV of the fuel, for month "i" $(Fuel)_i$ = Mass or volume of the fuel combusted during month "i" n = Number of months in the year that fuel is burned in the unit
C-1	$CO_{2(Paper\ Cores)}$ (metric tons) = ($1x10^{-03}$) x (annual mass of paper cores) x (Table C-1 default HHV) x (Table C-1 Emission Factor)
C-8	$CH_{4(Paper\ Cores)}$ (metric tons) = ($1x10^{-03}$) x (annual mass of paper cores) x (Table C-1 default HHV) x (Table C-2 Emission Factor) $N_2O_{(Paper\ Cores)}$ (metric tons) = ($1x10^{-03}$) x (annual mass of paper cores) x (Table C-1 default HHV) x (Table C-2 Emission Factor)
C-9a	No. 9 Boiler $CH_{4(per\ fuel\ type)}$ (metric tons) = ($1x10^{-03}$) x (annual mass or volume of fuel fired in No. 9 Boiler) x (annual HHV per Eq. C-2b) x (Table C-2 Emission Factor) for Natural Gas and Bark/Wood No. 9 Boiler $N_2O_{(per\ fuel\ type)}$ (metric tons) = ($1x10^{-03}$) x (annual mass or volume of fuel fired in No. 9 Boiler) x (annual HHV per Eq. C-2b) x (Table C-2 Emission Factor)

Table 3-7
No. 11 Boiler GHG Calculation Approach and Sample Calculations
Verso Escanaba LLC - Escanaba, MI

Table 3-7
No. 11 Boiler GHG Calculation Approach and Sample Calculations
Verso Escanaba LLC - Escanaba, MI

Heat Input: 1,040 MMBtu/hr | **Aggregation Approach:** No | **CO_2 CEM Operating:** Yes[a] | **Sorbent Used:** No
Common Pipe Approach: No | **Common Stack:** No | **Biogenic Emissions:** Yes | **Responsible Personnel:** See Table 5-2

GHG Calculation Approach

Fuel	Usage Units	Minimum Frequency of HHV Analysis	Minimum Frequency of Carbon Content Analysis	Biogenic	CO_2 Calculation Tier	CO_2 Calculation Equation	CH_4/N_2O Calculation Equation
Bituminous Coal	short tons	Per Fuel Lot	N/A	No	3	C-3	C-10
Bark/Wood Material	short tons	Weekly Sampling for Analysis of Monthly Composite	N/A	Yes	2	C-2a	C-10
Natural Gas	cubic feet	Semi-Annually	N/A	No	2	C-2a	C-10
TDF	short tons	Weekly Sampling for Analysis of Monthly Composite	N/A	No	3	C-3	C-10
WWTP Sludge	short tons	Weekly Sampling for Analysis of Monthly Composite	N/A	Yes	2	C-2a	C-10
Pellet Fuel[b]	short tons	N/A	N/A	Yes	1	C-6	C-10

GHG Sample Calculations

Equation	Sample Calculation
C-3	No. 11 Boiler $CO_{2(per\ fuel\ type)}$ (metric tons) = (44/12) x (annual mass or volume of fuel fired in No. 11 Boiler) x(Annual average carbon content of solid fuel fired in No. 11 Boiler)x .91) for coal or TDF
C-10	No. 11 Boiler CH_4 (metric tons) = ($CH_{4(Natural\ Gas)}$) + ($CH_{4(Wood\ Waste)}$) + ($CH_{4(Coal)}$) + ($CH_{4(TDF)}$) + ($CH_{4(Sludge)}$) + ($CH_{4(Pellet)}$), where $CH_{4\ (Natural\ Gas)}$ = ($1x10^{-03}$) x (annual heat input from total natural gas fired) x (Table C-2 Emission Factor) $CH_{4\ (Wood\ Waste)}$ = ($1x10^{-03}$) x (annual heat input from total wood waste fired) x (Table C-2 Emission Factor) $CH_{4\ (Coal)}$ = ($1x10^{-03}$) x (annual heat input from total coal fired) x (Table C-2 Emission Factor) $CH_{4\ (TDF)}$ = ($1x10^{-03}$) x (annual heat input from total TDF fired) x (Table C-2 Emission Factor) $CH_{4\ (Sludge)}$ = ($1x10^{-03}$) x (annual heat input from total sludge fired) x (Table C-2 Emission Factor) $CH_{4\ (Pellet)}$ = ($1x10^{-03}$) x (annual heat input from bark/wood fraction of total pellet fuel fired) x (Table C-2 Emission Factor)
	No. 11 Boiler N_2O (metric tons) = ($N_2O_{(Natural\ Gas)}$) + ($N_2O_{(Wood\ Waste)}$) + ($N_2O_{(Coal))}$ + ($N_2O_{(TDF)}$) + ($N_2O_{(Sludge)}$) + ($N_2O_{(Pellet)}$), where $N_2O_{\ (Natural\ Gas)}$ = ($1x10^{-03}$) x (annual heat input from total natural gas fired) x (Table C-2 Emission Factor) $N_2O_{\ (Wood\ Waste)}$ = ($1x10^{-03}$) x (annual heat input from total wood waste fired) x (Table C-2 Emission Factor) $N_2O_{\ (Coal)}$ = ($1x10^{-03}$) x (annual heat input from total coal fired) x (Table C-2 Emission Factor) $N_2O_{\ (TDF)}$ = ($1x10^{-03}$) x (annual heat input from total TDF fired) x (Table C-2 Emission Factor) $N_2O_{\ (Sludge)}$ = ($1x10^{-03}$) x (annual heat input from total sludge fired) x (Table C-2 Emission Factor) $N_2O_{\ (Pellet)}$ = ($1x10^{-03}$) x (annual heat input from bark/wood fraction of total pellet fuel fired) x (Table C-2 Emission Factor)
C-2a	No. 11 Boiler Biogenic CO_2 (metric tons) = $CO_{2(Wood\ Waste)}$ + $CO_{2(Sludge)}$, where: CO_2 = (1x10-03) x (annual mass or volume of fuel fired in No. 11 Boiler) x (HHV per Eq. C-2b) x (Table C-1 Emission Factor) for Bark/Wood and Sludge.

C-1	No. 11 Boiler Biogenic CO_2 (metric tons) = $CO_{2(Pellet\ Fuel)}$, where: CO_2 = (1x10-03) x (annual mass of fuel fired in No. 11 Boiler) x (Fraction of Pellet Fuel mass that is composed of Bark/Wood material) x (HHV per Table C-1) x (Table C-1 Emission Factor) for Bark/Wood and Sludge.

[(a)] A CO_2 CEMS and flow meter was installed and operational on No. 11 Boiler before January 1, 2011. The facility will follow the above sampling and calculation methodologies starting in reporting year 2011.
[(b)] Pellet fuel is composed of a plastic component (non-biogenic) and bark/wood material (biogenic). However, pellet fuel is not a listed fuel in tables C-1 or C-2 of 40 CFR Part 98, Subpart C. As a result, the bark/wood

Table 3-8
Miscellaneous Combustion Units GHG Calculation Approach and Sample Calculations
Verso Escanaba LLC - Escanaba, MI

Table 3-8
Miscellaneous Combustion Units GHG Calculation Approach and Sample Calculations
Verso Escanaba LLC - Escanaba, MI

Heat Input: ~86 MMBtu/hr
Common Pipe Approach: No
Aggregation Approach: Yes (Natural Gas, Propane)
Common Stack: No
CO_2 CEM Operating: No
Biogenic Emissions: No
Sorbent Used: No
Responsible Personnel: See Table 5-2

GHG Calculation Approach

Fuel	Usage Units	Minimum Frequency of HHV Analysis	Minimum Frequency of Carbon Content Analysis	Biogenic	CO_2 Calculation Tier	CO_2 Calculation Equation	CH_4/N_2O Calculation Equation
Fuel Oil	gallons	Not required for Tier 1 calculations as default value will be used from 40 CFR 98, Subpart C, Table C-1.	N/A	No	1	C-1	C-8
Propane[a]	gallons	Not required for Tier 1 calculations as default value will be used from 40 CFR 98, Subpart C, Table C-1.	N/A	No	1[a]	See Table 3-3	See Table 3-3
Natural Gas[b]	cubic feet	Semi-Annually	N/A	No	2[b]	See Table 3-2	See Table 3-2

[a] GHG emissions associated with the firing of propane in Miscellaneous Combustion Sources are accounted for under Aggregation of Units ID GP 002. Refer to Table 3-3.
[b] GHG emissions associated with the firing of natural gas in Miscellaneous Combustion Sources are accounted for under Aggregation of Units ID GP 001. Refer to Table 3-2.

GHG Sample Calculations

Equation	Sample Calculation
C-1	$CO_{2(Fuel\ Oil)}$ (metric tons) = ($1x10^{-03}$) x (annual volume of fuel oil fired) x (Table C-1 default HHV) x (Table C-1 Emission Factor)
C-8	$CH_{4(fuel\ oil)}$(metric tons) = ($1x10^{-03}$) x (annual volume of fuel oil fired) x (Table C-1 default HHV) x (Table C-2 Emission Factor) $N_2O_{(fuel\ oil)(}$metric tons) = ($1x10^{-03}$) x (annual volume of fuel oil fired) x (Table C-1 default HHV) x (Table C-2 Emission Factor)

Table 3-9
Lime Kiln GHG Calculation Approach and Sample Calculations
Verso Escanaba LLC - Escanaba, MI

Table 3-9
Lime Kiln GHG Calculation Approach and Sample Calculations
Verso Escanaba LLC - Escanaba, MI

Heat Input:	75 MMBtu/hr	**Aggregation Approach:**	No	**CO_2 CEM Operating:**	No	**Sorbent Used:**	No
Common Pipe Approach:	No	**Common Stack:**	No	**Biogenic Emissions:**	No	**Responsible Personnel:**	See Table 5-2

GHG Calculation Approach

Fuel	Usage Units	Minimum Frequency of HHV Analysis	Minimum Frequency of Carbon Content Analysis	Biogenic	CO_2 Calculation Tier	CO_2 Calculation Equation	CH_4/N_2O Calculation Equation
Natural Gas	cubic feet	Semi-Annually	N/A	No	2	C-2a	C-9a
Residual Fuel Oil	gallons	Per fuel lot	Per fuel lot	No	3	C-4	C-8

[(a)] The volume of residual fuel oil is measured using a certified flow meter. The volume of natural gas fired comes from company records. Modified in December 2010.

GHG Sample Calculations

Equation	Sample Calculation
C-2a	Lime Kiln CO_2 (metric tons) = ($1x10^{-03}$) x (annual volume of natural gas fired in Lime Kiln) x (HHV per Eq. C-2b) x (Table C-1 Emission Factor)
C-4	Lime Kiln $CO_{2\ (Fuel\ Oil)}$ (metric tons) = (44/12) x (annual volume of residual oil fired in Lime Kiln) x (annual average carbon content of residual oil) x (0.001)
C-8	Lime Kiln CH_4 (metric tons) = ($1x10^{-03}$) x (annual volume of fuel oil fired) x (Table C-1 default HHV) x (Table AA-2 Emission Factor) Lime Kiln N_2O (metric tons) = ($1x10^{-03}$) x (annual volume of fuel oil fired) x (Table C-1 default HHV) x (Table AA-2 Emission Factor)
C-9a	Lime Kiln $CH_{4(Natural\ Gas)}$ (metric tons) = ($1x10^{-03}$) x (annual volume of natural gas fired in Lime Kiln) x (annual HHV per Eq. C-2b) x (Table C-2 Emission Factor) Lime Kiln $N_2O_{(Natural\ Gas)}$ (metric tons) = ($1x10^{-03}$) x (annual volume of natural gas fired in Lime Kiln) x (annual HHV per Eq. C-2b) x (Table C-2 Emission Factor)
PP-2	$\sum_{p=1}^{4} [Q_p + D_p + C_{CO_2}] = CO_{2,p}$ Where: $CO_{2,u}$ = Annual mass of CO_2 (metric tons) through flow meter u. $C_{CO2,p}$ = Quarterly CO_2 concentration measurement in flow for flow meter u in quarter p (measured as either volume % CO_2 or weight % CO_2). Q_p = Quarterly volumetric flow rate measurement for flow meter u in quarter p (standard cubic meters). D_p = Density of CO_2 in quarter p (metric tons CO_2 per standard cubic meter) for flow meter u. p = Quarter of the year.

Table 3-10
Carbonate Purchase Make-Up Chemical GHG Calculation Approach and Sample Calculations
Verso Escanaba LLC - Escanaba, MI

Table 3-10

Carbonate Purchase Make-Up Chemical GHG Calculation Approach and Sample Calculations

Verso Escanaba LLC - Escanaba, MI

Heat Input: N/A

Common Pipe Approach: N/A

Aggregation Approach: N/A

Common Stack: N/A

CO_2 CEM Operating: N/A

Biogenic Emissions: N/A

Responsible Personnel: See Table 5-2

GHG Calculation Approach

Type of Carbonate Make-Up Chemical Purchased	Usage Units	CO_2 Calculation Tier	CO_2 Calculation Equation	CH_4/N_2O Calculation Equation
Sodium Carbonate (Na_2CO_3)	Metric Tons	N/A	AA-3	N/A

GHG Sample Calculations

Equation	Sample Calculation
AA-3	CO_2 (metric tons) = (Mass of Sodium Carbonate x 44/105.99) x 1000

Table 3-11
Recovery Furnace GHG Calculation Approach and Sample Calculations
Verso Escanaba LLC - Escanaba, MI

Table 3-11
Recovery Furnace GHG Calculation Approach and Sample Calculations
Verso Escanaba LLC - Escanaba, MI

Heat Input:	950 MMBtu/hr	**Aggregation Approach:**	No	**Fossil Fuels**	Yes	**Sorbent Used:**	No
Common Pipe Approach:	No	**CO_2 CEM Operating:**	No	**Biogenic Emissions:**	Yes	**Responsible Personnel:**	See Table 5-2

GHG Calculation Approach

Fuel	Usage Units	Minimum Frequency of HHV Analysis	Minimum Frequency of Carbon Content Analysis	Biogenic	CO_2 Calculation Tier	CO_2 Calculation Equation	CH_4/N_2O Calculation Equation
Black Liquor Solids	short tons	Annually	N/A	Yes	N/A	AA-1	AA-1
Residual Fuel Oil	gallons	Per fuel lot	Per fuel lot	No	3	C-4	C-8
Natural Gas	cubic feet	Semi-Annually	N/A	No	2	C-2a	C-9a

[a] The volume of fossil fuel combusted by the Chemical Recovery Furnace must be directly measured.

GHG Sample Calculations

Equation	Sample Calculation
AA-1	Chemical Recovery Furnace CO_2, CH_4, or N_2O (metric tons) = (0.90718) x (mass of spent BLS combusted) x HHV(BLS) x (Table AA-1 BLS Emission Factor)
C-2a	Chemical Recovery Furnace CO_2 (metric tons) = ($1x10^{-03}$) x (annual volume of natural gas fired in GP 001) x (HHV per Eq. C-2b) x (Table C-1 Emission Factor)
C-4	Chemical Recovery Furnace $CO_{2\,(Fuel\ Oil)}$ (metric tons) = (44/12) x (annual volume of residual oil fired in Recovery Furnace) x (annual average carbon content of residual oil) x (0.001)
C-8	Chemical Recovery Furnace $CH_{4(per\ fuel\ type)}$ (metric tons) = ($1x10^{-03}$) x (annual volume of fuel fired) x (Table C-1 default HHV) x (Table C-2 Emission Factor) Chemical Recovery Furnace $N_2O_{(per\ fuel\ type)}$ (metric tons) = ($1x10^{-03}$) x (annual volume of fuel fired) x (Table C-1 default HHV) x (Table C-2 Emission Factor)
C-9a	Chemical Recovery Furnace $CH_{4(Natural\ Gas)}$ (metric tons) = ($1x10^{-03}$) x (annual volume of natural gas fired in Chemical Recovery Furnace) x (annual HHV per Eq. C-2b) x (Table C-2 Emission Factor) Chemical Recovery Furnace $N_2O_{(Natural\ Gas)}$ (metric tons) = ($1x10^{-03}$) x (annual volume of natural gas fired in Chemical Recovery Furnace) x (annual HHV per Eq. C-2b) x (Table C-2 Emission Factor)

Table 3-12
Subpart TT Landfill Calculations
Verso Escanaba LLC - Escanaba, MI

Table 3-12 continued
Subpart TT Landfill Calculations
Verso Escanaba LLC - Escanaba, MI

Table 3-12
Subpart TT Landfill Calculations
Verso Escanaba LLC - Escanaba, MI

Characteristic	Landfill Unit						
	Unlined Area	Phase 1	Phase 2	Phases 3-4	Phase 5	Phase 6	Phases 7-11
Status of Landfill during reporting year:	Closed	Closed	Closed	Open	Open	Open	Unconstructed
Number of Waste streams:	8	8	8	8	8	8	8
Landfill capacity (cubic yards):	1.7 to 2.0 million	346,650	400,000	921,000	902,200	815,800	3,532,900
Use of Leachate recirculation and frequency of use over the past 10 years:	No	No	No	No	No	No	No
Year in which Landfill first accepted waste:	Early 1900's	2002	1992	1992	2000	2012	Unconstructed
Estimated year of Landfill closure:	2002 (stopped accepting waste in 1992)	2012 (post-closure care through 2042)	1995 (post-closure care through 2025)	2013	2014-2020	2022-2030	2055-2075

GHG Calculation Approach

Waste Stream Material (Mass in metric tons, as received, wet weight) - Rule Categories	Waste Stream Material (Mass in metric tons, as received, wet weight) - Description	Recommended Waste Quantity Estimation Method, Frequency, and Range of Years	Recordkeeping Details	Degradable organic carbon DOC_X (a)	Decay Rate (k) (a)(b)	Part 98 Calibration Requirements	CH_4 Calculation Equation
Pulp and Paper (other than industrial sludge)	Boiler ash, pulp, paper, wood waste, and lime waste	2001 to present Direct mass measurement - internal truck dumping tracking system. 1992 to 2000 Historic data and equations TT-2 or TT-3, utilizing Waste Disposal Factor (WDF). Open to 1991 Equation TT-4a, utilizing Landfill Capacity (LFC).	Record the annual quantities of waste disposed of in the landfills separately for each waste stream.	0.20	0.03	Document in corporate records.	TT-1 and TT-6
Industrial Sludge	Wastewater treatment plant residuals			0.09	0.04		TT-1 and TT-6
Construction and Demolition Waste	Waste from Construction and Demolition			0.08	0.03		TT-1 and TT-6
Other Industrial Solid Waste	General mill trash/garbage and asbestos waste			0.20	0.04		TT-1 and TT-6

(a) Factors obtained from Table TT-1 to 40 CFR Part 98, Subpart TT.

(b) Decay Rate factor (k) applicable climate classification selected for moderate climate with annual precipitation of 20-40 inches per year. The Mill does not utilize leachate recirculation. Climate data obtained from the Northeast Regional Climate Center at www.nrcc.cornell.edu. The normal precipitation is the arithmetic mean for each month over the 30 year period, adjusted as necessary, and includes the liquid water equivalent of snowfall.

GHG Sample Calculations

Equation	Sample Calculation
TT-1 Modeled CH_4 Generation	$G_{CH4} = \left[\sum_{x=S}^{T-1} \{W_X \times DOC_X \times MCF \times DOC_F \times F_X \times 16/12 \times (e^{-k(T-X-1)} - e^{-k(T-X)})\}\right]$ Where: X = Year in which waste was disposed. S = Start year of calculation, use 1960 or actual opening year of landfill, whichever is more recent. T = Reporting year for which emission are calculated. W_X = Quantity of waste disposed in the landfill in year X from measurement data and/or other company records, in metric tons, as received, wet weight. DOC_X = Degradable organic carbon for year X from 40 CFR Part 98, Subpart TT, Table TT-1 or from measurement data if available. MCF = Methane Correction Factor, use default value = 1.0. DOC_F = Fraction of DOCx, use default value = 0.5. F_X = Fraction of CH4 in landfill gas, use default value = 0.5. k = decay rate, from 40 CFR Part 98, Subpart TT, Table TT-1.
TT-2 Waste Disposal Factor (WDF)	WDF = $\left[\sum_{x=Y_1}^{Y_2} \left\{\frac{W_x}{N \times P_x}\right\}\right]$
TT-3 Calculate Historic Waste Disposal Quantity (W_X)	W_X = WDF x P_X
TT-4a Calculate Historic Waste Disposal Quantity (W_X)	$W_X = \frac{LFC}{(YrData - YrOpen + 1)}$
TT-6 CH_4 Generation	MG = G_{CH4} x (1-OX) Where: MG = Methane generation, adjusted for oxidation, from the landfill, for the reporting year. G_{CH4} = Modeled methane generated rate calculated from Eq. TT-1. OX = Oxidation fraction, use default value 0.1 (10%).

Table 3-13
Exempt Equipment Criteria
Verso Escanaba LLC - Escanaba, MI

Table 3-13
Exempt Equipment Criteria
Verso Escanaba LLC - Escanaba, MI

Exempt Equipment Type	Criteria	Exempt Emission Units
Portable Equipment	Designated and capable of being carried or moved from one location to another. Indications of portability include but are not limited to wheels, skids, carrying handles, dolly, trailer, or platform. Equipment is not portable if any one of the following conditions exists: (1) The equipment is attached to a foundation. (2) The equipment or a replacement resides at the same location for more than 12 consecutive months. (3) The equipment is located at a seasonal facility and operates during the full annual operating period of the seasonal facility, remains at the facility for at least two years, and operates at that facility for at least three months each year. (4) The equipment is moved from one location to another in an attempt to circumvent the portable residence time requirements of this definition.	The Escanaba Mill owns some equipment that meets this definition. Because this equipment is exempt no master list is maintained.
Emergency Generators	A stationary combustion device, such as a reciprocating internal combustion engine or turbine that serves solely as a secondary source of mechanical or electrical power whenever the primary energy supply is disrupted or discontinued during power outages or natural disasters that are beyond the control of the owner or operator of the facility. An emergency generator operates only during emergency situations, for training of personnel under simulated emergency conditions, as part of emergency demand response procedures, or for standard performance testing procedures as required by law or by the generator manufacturer. A generator that serves as a back-up power source under conditions of load shedding, peak shaving, power interruptions pursuant to an interruptible power service agreement, or scheduled facility maintenance shall not be considered an emergency generator.	The Escanaba Mill owns some emergency generators. Because this equipment is exempt no master list is maintained.
Emergency Equipment	Any auxiliary fossil fuel-powered equipment, such as a fire pump, that is used only in emergency situations.	The Escanaba Mill owns some equipment that meets this definition. Because this equipment is exempt no master list is maintained.

4. QUALITY ASSURANCE AND QUALITY CONTROL (QA/QC)

This section of the GHG Monitoring Plan describes the specific QA/QC procedures that are part of the Escanaba Mill's effort to measure, record, and report GHG emissions. Where applicable, the Mill references existing QA/QC procedures and documents that have been developed for other regulatory programs at the Mill.

4.1 QA/QC OF GHG MEASUREMENT PROCESSES

The Mill is applying approved QA/QC procedures to all steps in the GHG measurement process to ensure the quality-assured measurement of the amount of fuels or process-related materials (e.g., black liquor solids) used and quality-assured determinations of the GHG properties of the fuels or process-related materials.

In most cases, the QA/QC practices will cover the quality of the measurement of the amount of fuels or process-related materials (e.g., black liquor solids) used and then a determination of the GHG properties of the fuels or process-related materials. In both instances, the use of U.S. EPA-approved testing procedures, sampling, and analytical practices will be used. Testing methods are sourced from the American Society of Testing and Materials (ASTM), the American National Standards Institute (ANSI), the National Council for Air and Stream Improvement (NCASI), the National Institute of Standards and Technology (NIST), and the Technical Association of the Pulp and Paper Industry (TAPPI). A summary of U.S. EPA's recommended procedures that will be part of the Mill's GHG measurement process is presented in Tables 4-1 through 4-6, along with the parameters for which the procedures apply.

Table 4-1
QA/QC Procedures for GHG Measurements for No. 7 Boiler
Verso Escanaba LLC - Escanaba, MI

Table 4-1
QA/QC Procedures for GHG Measurements for No. 7 Boiler
Verso Escanaba LLC - Escanaba, MI

Tier	Fuel	Parameter	Minimum Frequency per 40 CFR Part 98	Sampling Location	Initial Calibration	Accepted Methods
Tier 2 - Applicable for natural gas firing since the Mill routinely receives HHV data from local natural gas distribution company	Natural Gas	Fuel Usage	Annual	For GHG calculations No.7 Boiler natural gas usage is calculated under GP 001. No. 7 Boiler does have a flow meter, but for accounting purposes natural gas usage in No. 7 Boiler is determined based on steam production.	N/A	The flow meter and steam production instrumentation are maintained and calibrated as needed. There are no specific calibration requirements for natural gas usage in No. 7 Boiler as it falls under company records. No.7 Boiler natural gas usage is calculated under GP 001. Reference Table 5-1.
		HHV	Semi-Annual [(a)]	HHV values will be provided by the supplier on a monthly basis. The supplier collects samples representative of what is supplied to the Mill. Analytical results are maintained by the supplier and are available upon request.	N/A	Chromatographic analysis together with standard heating values of the fuel constituents, provided that the gas chromatograph is operated, maintained, and calibrated according to the manufacturer's instructions; or
						ASTM D1826-94 (Reapproved 2003) Standard Test Method for Calorific (Heating) Value of Gases in Natural Gas Range by Continuous Recording Calorimeter (incorporated by reference, see §98.7); or
						ASTM D3588-98 (Reapproved 2003) Standard Practice for Calculating Heat Value, Compressibility Factor, and Relative Density of Gaseous Fuels (incorporated by reference, see §98.7); or
						ASTM D4891-89 (Reapproved 2006) Standard Test Method for Heating Value of Gases in Natural Gas Range by Stoichiometric Combustion (incorporated by reference, see §98.7); or
						GPA Standard 2172-09 Calculation of Gross Heating Value, Relative Density, Compressibility and Theoretical Hydrocarbon Liquid Content for Natural Gas Mixtures for Custody Transfer (incorporated by reference, see §98.7)
Tier 3 - Applicable because the Mill routinely performs fuel sampling and analysis for HHV for the Tier 3 calculations required for the No. 8 boiler	Residual Oil	Fuel Usage	Monthly[(a)]	No. 7 Boiler does not currently burn residual fuel oil. If residual fuel oil is burned in the future the QA/QC requirements of 40 CFR 98 will be followed.	N/A	There are no calibration requirements for this meter at this time as the Mill does not currently burn residual fuel oil in No. 7 Boiler. If residual fuel oil is burned in the future the QA/QC requirements of 40 CFR 98 will be followed. Reference Table 5-1.
		HHV	Per Fuel Lot	No. 7 Boiler does not currently burn residual fuel oil. If residual fuel oil is burned in the future Tier 3 testing would be required as this is required on No. 8 Boiler.	N/A	ASTM-D4809-6 Standard Test Method for Heat of Combustion of Liquid Hydrocarbon Fuels by Bomb Calorimeter (Precision Method) (incorporated by reference, see §98.7)
						ASTM-D240-02 (Reapproved 2007) Standard Test Method for Heat of Combustion of Liquid Hydrocarbon Fuels by Bomb Calorimeter (incorporated by reference, see §98.7)
		Carbon Content	Monthly [(b)]	No. 7 Boiler does not currently burn residual fuel oil. If residual fuel oil is burned in the future Tier 3 testing would be required as this is required on No. 8 Boiler.	N/A	ASTM-D3238-95 (Reapproved 2005) Standard Test Method for Calculation of Carbon Distribution and Structural Group Analysis of Petroleum Oils by the n-d-M Method (incorporated by reference, see §98.7)
						ASTM-D5291-02 (Reapproved 2007) Standard Test Methods for Instrumental Determination of Carbon, Hydrogen, and Nitrogen in Petroleum Products and Lubricants (incorporated by reference, see §98.7)

[(a)] If HHV for a specific fuel type is collected at a monthly (or greater) frequency, the Mill must collect monthly fuel usage readings.
[(b)] Residual fuel oil samples are collected monthly, not per fuel lot. See Table 5-1 for the explanation.

Table 4-2
QA/QC Procedures for GHG Measurements for No. 8 Boiler
Verso Escanaba LLC - Escanaba, MI

Table 4-2
QA/QC Procedures for GHG Measurements for No. 8 Boiler
Verso Escanaba LLC - Escanaba, MI

Tier	Fuel	Parameter	Minimum Frequency per 40 CFR Part 98	Sampling Location	Initial Calibration	Accepted Methods
Tier 2 - Applicable since the emission unit is greater than 250 MMBtu/hr and fires pipeline quality natural gas	Natural Gas	Fuel Usage	Annual	Direct measurement by a flow meter (13-F0103.4). See the Inspection and Maintenance Plan for details at L:\Local Initiatives\Environmental\ENVIRO\ Air\Title V\Recordkeeping\Inspection & Maintenance Plan\I&M Plan.xls	12/29/2009	This flow meter is calibrated annually per manufacturer's recommendations. Although this meter is calibrated annually, the QA/QC requirements of 40 CFR 98 do not require this as this meter falls under the company records provisions. Reference Table 5-1.
		HHV	Semi-Annual	HHV values will be provided by the supplier on a monthly basis. The supplier collects samples representative of what is supplied to the Mill. Analytical results are maintained by the supplier and are available upon request.	N/A	Chromatographic analysis together with standard heating values of the fuel constituents, provided that the gas chromatograph is operated, maintained, and calibrated according to the manufacturer's instructions; or
						ASTM D1826-94 (Reapproved 2003) Standard Test Method for Calorific (Heating) Value of Gases in Natural Gas Range by Continuous Recording Calorimeter (incorporated by reference, see §98.7); or
						ASTM D3588-98 (Reapproved 2003) Standard Practice for Calculating Heat Value, Compressibility Factor, and Relative Density of Gaseous Fuels (incorporated by reference, see §98.7); or
						ASTM D4891-89 (Reapproved 2006) Standard Test Method for Heating Value of Gases in Natural Gas Range by Stoichiometric Combustion (incorporated by reference, see §98.7); or
						GPA Standard 2172-09 Calculation of Gross Heating Value, Relative Density, Compressibility and Theoretical Hydrocarbon Liquid Content for Natural Gas Mixtures for Custody Transfer (incorporated by reference, see §98.7)
Tier 3 - Applicable because the Mill routinely performs fuel sampling and analysis for HHV for the Tier 3 calculations required for the emission unit	Residual Oil	Fuel Usage	Monthly[a]	Direct measurement by a flow meter (13-F0105.Q). See the Inspection and Maintenance Plan for details at L:\Local Initiatives\Environmental\ENVIRO\ Air\Title V\Recordkeeping\Inspection & Maintenance Plan\I&M Plan.xls	12/16/2009	This flow meter is calibrated annually per manufacturer's recommendations. Because this residual fuel oil meter falls under Tier 3, regular calibration is required. The E&I Techs follow the manufacturer's recommended procedures for calibration. Reference Table 5-1.
		HHV	Per Fuel Lot	HHV values are provided by the fuel suppliers.	N/A	ASTM-D4809-6 Standard Test Method for Heat of Combustion of Liquid Hydrocarbon Fuels by Bomb Calorimeter (Precision Method) (incorporated by reference, see §98.7)
						ASTM-D240-02 (Reapproved 2007) Standard Test Method for Heat of Combustion of Liquid Hydrocarbon Fuels by Bomb Calorimeter (incorporated by reference, see §98.7)
		Carbon Content	Monthly [b]	Carbon content samples are collected by the Mill and sent to an outside lab on a monthly basis for analysis. See the sampling SOP for more details at L:\Local Initiatives\Environmental\ ENVIRO\ Air\GHG\GHG Monitoring Plan\GHG Fuel Sampling SOP.pdf	N/A	ASTM-D3238-95 (Reapproved 2005) Standard Test Method for Calculation of Carbon Distribution and Structural Group Analysis of Petroleum Oils by the n-d-M Method (incorporated by reference, see §98.7)
						ASTM-D5291-02 (Reapproved 2007) Standard Test Methods for Instrumental Determination of Carbon, Hydrogen, and Nitrogen in Petroleum Products and Lubricants (incorporated by reference, see §98.7)

[a] If HHV for a specific fuel type is collected at a monthly (or greater) frequency, the Mill must collect monthly fuel usage readings.
[b] Residual fuel oil samples are collected monthly, not per fuel lot. See Table 5-1 for the explanation.

Table 4-3
QA/QC Procedures for GHG Measurements for No. 9 Boiler
Verso Escanaba LLC - Escanaba, MI

Table 4-3
QA/QC Procedures for GHG Measurements for No. 9 Boiler
Verso Escanaba LLC - Escanaba, MI

Tier	Fuel	Parameter	Minimum Frequency per 40 CFR Part 98	Sampling Location	Initial Calibration	Accepted Methods
Tier 2 - Applicable due to the frequency of fuel sampling and analysis for HHV	Bark/Woodwaste	Fuel Usage	N/A	Bark and woodwaste are measured by the inventory method. The usage determined by the inventory method is allocated to No. 9 and No. 11 Boiler based on their PI Tag (70-F0402.BT) scaled usage by accounting.	N/A	Bark and woodwaste usage falls under the company records provisions. Usage information is important, therefore, the mill maintains the equipment as necessary, however, there are no specific calibration requirements for this equipment. Reference Table 5-1.
		HHV	Sampled weekly, samples composited and sent out monthly	The Fuel Sampler collects a representative sample weekly. The weekly samples are composited into one monthly sample and sent to a certified lab for analysis. See the sampling SOP for more details at L:\Local Initiatives\Environmental\ ENVIRO\Air\GHG\GHG Monitoring Plan\GHG Fuel Sampling SOP.pdf	N/A	ASTM D5865-07a Standard Test Methods for Gross Calorific Value of Coal and Coke (incorporated by reference, see §98.7).
Tier 2 - Applicable since the emission unit is greater than 250 MMBtu/hr and fires pipeline quality natural gas	Natural Gas	Fuel Usage	Monthly [a]	Direct measurement by a flow meter (03-F0108.4). See the Inspection and Maintenance Plan for details at L:\Local Initiatives\Environmental\ ENVIRO\Air\Title V\Recordkeeping\Inspection & Maintenance Plan\I&M Plan.xls	12/17/2009	This flow meter is calibrated annually per manufacturer's recommendations. Although this meter is calibrated annually, the QA/QC requirements of 40 CFR 98 do not require this as this meter falls under the company records provisions. Reference Table 5-1.
		HHV	Semi-Annual	HHV values will be provided by the supplier on a monthly basis. The supplier collects samples representative of what is supplied to the Mill. Analytical results are maintained by the supplier and are available upon request.	-	Chromatographic analysis together with standard heating values of the fuel constituents, provided that the gas chromatograph is operated, maintained, and calibrated according to the manufacturer's instructions
						ASTM D1826-94 (Reapproved 2003) Standard Test Method for Calorific (Heating) Value of Gases in Natural Gas Range by Continuous Recording Calorimeter (incorporated by reference, see §98.7)
						ASTM D3588-98 (Reapproved 2003) Standard Practice for Calculating Heat Value, Compressibility Factor, and Relative Density of Gaseous Fuels (incorporated by reference, see §98.7)
						ASTM D4891-89 (Reapproved 2006) Standard Test Method for Heating Value of Gases in Natural Gas Range by Stoichiometric Combustion (incorporated by reference, see §98.7)
						GPA Standard 2172-09 Calculation of Gross Heating Value, Relative Density, Compressibility and Theoretical Hydrocarbon Liquid Content for Natural Gas Mixtures for Custody Transfer (incorporated by reference, see §98.7)

[a] If HHV for a specific fuel type is collected at a monthly (or greater) frequency, the Mill must collect monthly fuel usage readings.

Table 4-4
QA/QC Procedures for GHG Measurements for No. 11 Boiler
Verso Escanaba LLC - Escanaba, MI

Table 4-4
QA/QC Procedures for GHG Measurements for No. 11 Boiler
Verso Escanaba LLC - Escanaba, MI

Tier	Fuel	Parameter	Minimum Frequency per 40 CFR Part 98	Sampling Location	Initial Calibration	Accepted Methods
Tier 1	Pellet Fuel	Mass	N/A	Pellet Fuel is measured by the inventory method. This is then compared to the PI tag (70-PELBUCK.LQ). The PI tag data is calculated using the average weight per bucket multiplied by the number of buckets used.	N/A	Pellet fuel usage falls under the company records provisions. Usage information is important; therefore, the mill maintains the equipment as necessary. However, there are no specific calibration requirements for this equipment. Reference Table 5-1.
Tier 2 - Applicable since the emission unit is greater than 250 MMBtu/hr, fires pipeline quality natural gas, and the frequency of fuel sampling and analysis for HHV	Natural Gas Used for calculation of CH_4 and N_2O emissions.	Fuel Usage	Annual	Direct measurement by a flow meter (68-F2404.4). See the Inspection and Maintenance Plan for details at L:\Local Initiatives\Environmental\ ENVIRO\Air\Title V\Recordkeeping\Inspection & Maintenance Plan\I&M Plan.xls	12/18/2009	This flow meter is calibrated annually per manufacturer's recommendations. Although this meter is calibrated annually, the QA/QC requirements of 40 CFR 98 do not require this as this meter falls under the company records provisions. Reference Table 5-1.
		HHV	Semi-Annual	HHV values will be provided by the supplier on a monthly basis. The supplier collects samples representative of what is supplied to the Mill. Analytical results are maintained by the supplier and are available upon request.	N/A	Chromatographic analysis together with standard heating values of the fuel constituents, provided that the gas chromatograph is operated, maintained, and calibrated according to the manufacturer's instructions
						ASTM D1826-94 (Reapproved 2003) Standard Test Method for Calorific (Heating) Value of Gases in Natural Gas Range by Continuous Recording Calorimeter (incorporated by reference, see §98.7)
						ASTM D3588-98 (Reapproved 2003) Standard Practice for Calculating Heat Value, Compressibility Factor, and Relative Density of Gaseous Fuels (incorporated by reference, see §98.7)
						ASTM D4891-89 (Reapproved 2006) Standard Test Method for Heating Value of Gases in Natural Gas Range by Stoichiometric Combustion (incorporated by reference, see §98.7)
						GPA Standard 2172-09 Calculation of Gross Heating Value, Relative Density, Compressibility and Theoretical Hydrocarbon Liquid Content for Natural Gas Mixtures for Custody Transfer (incorporated by reference, see §98.7)
	Bark/Wood Waste & WWTP Sludge Used for calculation of CH_4, N_2O and Biogenic CO_2 emissions.	Fuel Usage	N/A	Bark and Woodwaste are measured by the inventory method. The usage determined by the inventory method is allocated to No. 9 and No. 11 Boiler based on scaled usage by accounting PI Tag 70-F0402.BT. WWTP Sludge is measured by truckload counts that are sent to No. 11 Boiler to burn (11-LQ1004). See Table 5-1 for more details.	N/A	Bark, woodwaste, and sludge usage fall under the company records provisions. Usage information is important, therefore, the mill maintains the equipment as necessary, however, there are no specific calibration requirements for this equipment. Reference Table 5-1.
		HHV	Weekly Sampling for Analysis of Monthly Composite	The Fuel Sampler collects a representative sample weekly. The weekly samples are composited into one monthly sample and sent to a certified lab for analysis. See the sampling SOP for more details at L:\Local Initiatives\Environmental\ENVIRO \Air\GHG\GHG Monitoring Plan\GHG Fuel Sampling SOP.pdf	N/A	ASTM D5865-07a Standard Test Methods for Gross Calorific Value of Coal and Coke (incorporated by reference, see §98.7).

Table 4-4 cont'd

Table 4-4
QA/QC Procedures for GHG Measurements for No. 11 Boiler
Verso Escanaba LLC - Escanaba, MI

Tier	Fuel	Parameter	Minimum Frequency per 40 CFR Part 98	Sampling Location	Initial Calibration	Accepted Methods
Tier 3 - Applicable because the Mill routinely performs fuel sampling and analysis for HHV for the Tier 3 calculations required for the emission unit	Bituminous Coal Used for calculation of CH_4 and N_2O emissions.	Mass	N/A	Coal is measured by the inventory method. This is then compared to the PI tag 68-F0112.4, which is based on scaled weight.	N/A	Coal usage falls under the company records provisions. Usage information is important, therefore, the mill maintains the equipment as necessary, however, there are no specific calibration requirements for this equipment. Reference Table 5-1.
		HHV	Per fuel lot	This sampling and testing is done by the suppliers. The results are sent to Purchasing and Environmental and kept in File 8.15.6.	N/A	ASTM D5865-07a Standard Test Methods for Gross Calorific Value of Coal and Coke (incorporated by reference, see §98.7).
	TDF Used for calculation of CH_4 and N_2O emissions.	Mass	N/A	TDF is measured by the inventory method. This is then compared to the PI tag (70-TDFBUCK.LQ). The PI tag data is calculated using the average weight per bucket multiplied by the number of buckets used.	N/A	TDF usage falls under the company records provisions. Usage information is important, therefore, the mill maintains the equipment as necessary, however, there are no specific calibration requirements for this equipment. Reference Table 5-1.
		HHV	Weekly Sampling for Analysis of Monthly Composite	The Fuel Sampler collects a representative sample weekly. The weekly samples are composited into one monthly sample and sent to a certified lab for analysis. See the sampling SOP for more details at L:\Local Initiatives\Environmental\ENVIRO\ Air\GHG\GHG Monitoring Plan\GHG Fuel Sampling SOP.pdf	N/A	ASTM D5865-07a Standard Test Methods for Gross Calorific Value of Coal and Coke (incorporated by reference, see §98.7).

[a] Initial calibration not required by January 1, 2010 if previously calibrated in accordance with Part 98 and the time interval between successive calibrations as required by Part 98 has not elapsed. If equipment is not certified prior to initial deadline, Tier 2 or 3 may be used to report GHG in 2010.

Table 4-5
QA/QC Procedures for GHG Measurements for Lime Kiln & Recovery Boiler
Verso Escanaba LLC - Escanaba, MI

Table 4-5
QA/QC Procedures for GHG Measurements for Lime Kiln & Recovery Boiler
Verso Escanaba LLC - Escanaba, MI

Tier	Fuel	Parameter	Minimum Frequency per 40 CFR Part 98	Sampling Location	Initial Calibration	Accepted Methods
Tier 2 - Per the requirements of §98.273(a)(1) & (2) and the frequency of fuel sampling and analysis for HHV.	Natural Gas	Fuel Usage	Annual	Direct measurement by a flow meter (13-F0103.4). See the Inspection and Maintenance Plan for details at L:\Local Initiatives\Environmental\ENVIRO\ Air\Title V\Recordkeeping\Inspection & Maintenance Plan\I&M Plan.xls	12/29/2009	This flow meter is calibrated annually per manufacturer's recommendations. Although this meter is calibrated annually, the QA/QC requirements of 40 CFR 98 do not require this as this meter falls under the company records provisions. Reference Table 5-1.
		HHV	Semi-Annual	HHV values will be provided by the supplier on a monthly basis. The supplier collects samples representative of what is supplied to the Mill. Analytical results are maintained by the supplier and are available upon request.	N/A	Chromatographic analysis together with standard heating values of the fuel constituents, provided that the gas chromatograph is operated, maintained, and calibrated according to the manufacturer's instructions; or
						ASTM D1826-94 (Reapproved 2003) Standard Test Method for Calorific (Heating) Value of Gases in Natural Gas Range by Continuous Recording Calorimeter (incorporated by reference, see §98.7); or
						ASTM D3588-98 (Reapproved 2003) Standard Practice for Calculating Heat Value, Compressibility Factor, and Relative Density of Gaseous Fuels (incorporated by reference, see §98.7); or
						ASTM D4891-89 (Reapproved 2006) Standard Test Method for Heating Value of Gases in Natural Gas Range by Stoichiometric Combustion (incorporated by reference, see §98.7); or
						GPA Standard 2172-09 Calculation of Gross Heating Value, Relative Density, Compressibility and Theoretical Hydrocarbon Liquid Content for Natural Gas Mixtures for Custody Transfer (incorporated by reference, see §98.7)

Table 4-5 cont'd

Table 4-5
QA/QC Procedures for GHG Measurements for Lime Kiln & Recovery Boiler
Verso Escanaba LLC - Escanaba, MI

Tier	Fuel	Parameter	Minimum Frequency per 40 CFR Part 98	Sampling Location	Initial Calibration	Accepted Methods
Per the requirements of §98.273(a)(3).	BLS	Mass	N/A	**FLOW**: Direct measurement of BLS fired by 3 calibrated flow meters (15-0203, 15-0210A, & 15-0210B) at source and totalized in PI Tag (15-DTOT7). See the Inspection and Maintenance Plan for details at L:\Local Initiatives\Environmental\ENVIRO\Air\Title V\Recordkeeping\Inspection & Maintenance Plan\I&M Plan.xls. **SOLIDS**: Black Liquor solids are measured continually by averaging 2 refractometers (15-D0204.4 & 15-D0706.4). These instruments are calibrated by comparing the results to the samples collected and analyzed by the Fuel Tester. The results are kept in File 8.15. In addition, samples are sent to an outside lab for analysis at least annually.	N/A	T-650 om-05 Solids Content of Black Liquor, TAPPI (incorporated by reference in §98.7). Flow meter is sent to the manufacturer for calibration on an as needed basis. This is less often than annually. Records of Measurement made with an online measurement system that determines the mass of spent liquor solids fired.
		HHV	Annual	A sample is collected at least annually and sent to a lab to run a certified test.	N/A	T684 om-06 Gross Heating Value of Black Liquor, TAPPI (incorporated by reference, see §98.7). ASTM D5865-07a Standard Test Methods for Gross Calorific Value of Coal and Coke (incorporated by reference, see §98.7).
Tier 3 - Per the requirements of §98.273(a)(1) & (2) because a quality assured flow meter is used to measure the amount of residual fuel oil fired in the emission unit.	Residual Oil	Fuel Usage	Monthly[(a)]	Direct measurement by a flow meter (13-F0105.Q). See the Inspection and Maintenance Plan for details at L:\Local Initiatives\Environmental\ENVIRO\Air\Title V\Recordkeeping\Inspection & Maintenance Plan\I&M Plan.xls	12/16/2009	This flow meter is calibrated annually per manufacturer's recommendations. Because this residual fuel oil meter falls under Tier 3, regular calibration is required. The E&I Techs follow the manufacturer's recommended procedures for calibration. Reference Table 5-1.
		HHV	Per Fuel Lot	HHV values are provided by the fuel suppliers.	N/A	ASTM-D4809-6 Standard Test Method for Heat of Combustion of Liquid Hydrocarbon Fuels by Bomb Calorimeter (Precision Method) (incorporated by reference, see §98.7) ASTM-D240-02 (Reapproved 2007) Standard Test Method for Heat of Combustion of Liquid Hydrocarbon Fuels by Bomb Calorimeter (incorporated by reference, see §98.7)
		Carbon Content	Sampled weekly, samples composited and sent out monthly [(b)]	Carbon content samples are collected by the Mill weekly and sent to an outside lab on a monthly basis for analysis. See the sampling SOP for more details at L:\Local Initiatives\Environmental\ ENVIRO\Air\GHG\GHG Monitoring Plan\GHG Fuel Sampling SOP.pdf	N/A	ASTM-D3238-95 (Reapproved 2005) Standard Test Method for Calculation of Carbon Distribution and Structural Group Analysis of Petroleum Oils by the n-d-M Method (incorporated by reference, see §98.7) ASTM-D5291-02 (Reapproved 2007) Standard Test Methods for Instrumental Determination of Carbon, Hydrogen, and Nitrogen in Petroleum Products and Lubricants (incorporated by reference, see §98.7)

(a) If HHV for a specific fuel type is collected at a monthly (or greater) frequency, the Mill must collect monthly fuel usage readings.

Table 4-6
QA/QC Procedures for GHG Measurements of CO_2 Exhausted to PCC Plant
Verso Escanaba LLC - Escanaba, MI

Table 4-6
QA/QC Procedures for GHG Measurements of CO_2 Exhausted to PCC Plant
Verso Escanaba LLC - Escanaba, MI

Parameter	Minimum Frequency per 40 CFR Part 98	Sampling Location	Initial Calibration Deadline	Accepted Methods
Exhaust Flow to PCC Plant	Quarterly	Direct measurement of flow rate in duct downstream of Lime Kiln by pitot flow sensor.	N/A	Applicable method published by a consensus-based standards organization or industry standard practices if no appropriate standard method developed by a consensus-based standards organization exists. The exhaust flow to the PCC plant is recorded by plant personnel on a quarterly basis.
CO_2 Concentration (% by volume) in Exhaust to PCC Plant	Quarterly	Direct measurement in duct downstream of Lime Kiln by extraction sample and gas temperature measurement.	N/A	Applicable method published by a consensus-based standards organization or industry standard method. The Mill utilizes U.S. EPA Method 3.
CO_2 Density in Exhaust to PCC Plant	Quarterly	Direct measurement in duct downstream of Lime Kiln by extraction sample and gas temperature measurement.	N/A	Applicable method published by a consensus-based standards organization or industry standard practices. Per 40 CFR Part 98.424(c), if you apply the density value for CO_2 at standard conditions, you must use 0.001868 metric tons per standard cubic meter.

4.2 QA/QC OF GHG REPORTING PRACTICES

The Escanaba Mill uses a GHG Calculation Spreadsheet Tool, designed according to the specifications of this Monitoring Plan, to determine the mass of GHG emitted each year. The Spreadsheet Tool underwent initial third-party QA to make certain that the calculations are being performed properly. Standard Mill QA procedures for data entry in the Spreadsheet Tool are used, as discussed in the Mill's quality control manual(s).

4.3 TRAINING

The Escanaba Mill will collect samples, report, record, and calculate GHG emissions in compliance with the requirements contained in 40 CFR Part 98. The designated representative at the Escanaba Mill is responsible for ensuring that all personnel involved in these activities are properly trained. This GHG Monitoring Plan is the primary source of information regarding reporting requirements and will be used as the basis for training personnel.

5. PROCESS OF DATA REPORTING AND ARCHIVING

This section of the GHG Monitoring Plan describes the general procedures for reporting GHG emissions to U.S. EPA, including descriptions of the company records and personnel utilized for collecting data and the process of archiving reported data and supporting information. In addition, the procedures for updating this GHG Monitoring Plan due to changes in either Mill operations or the requirements of 40 CFR Part 98 are also outlined in Section 5.

5.1 COMPANY RECORDS

The Escanaba Mill will utilize "company records" for a significant portion of the GHG reporting process. In context of the GHG emission calculation process and fuel flow information, company records encompass the amount of fuel consumed by a stationary combustion unit (or by a group of such units), how the amount of fuel was determined, and any calculations performed to quantify fuel usage. Company records may include, but are not limited to, direct measurements of fuel consumption by gravimetric or volumetric means, tank drop measurements, and calculated values of fuel usage obtained by measuring auxiliary parameters such as steam generation or unit operating hours. Fuel billing records obtained from fuel suppliers qualify as company records. A summary of the methods used to measure and record fuel use is provided in Table 5-1.

5.2 COMPANY RESOURCES

The reporting of GHG will require the coordination of several operational areas at the Escanaba Mill. Accounting, recovery and boiler operations, maintenance, and the environmental departments will all have responsibilities related to data collection, data calculation, data management, QA/QC requirements, and data reporting. A summary of the positions responsible for activities related to the reporting of GHG is provided in Table 5-2.

5.3 DATA REPORTING PROCESS

The Escanaba Mill electronically submits annual GHG Summary Reports to U.S. EPA via the Electronic Greenhouse Gas Reporting Tool (e-GGRT) no later than March 31st of each calendar year, or any other reporting date promulgated by U.S. EPA, for GHG emissions associated with each previous calendar year. The information that is to be included in each annual GHG Summary Report is specified at 40 CFR §98.3(c), §98.36, §98.276 and §98.466 for Subparts A, C, AA, PP, and TT, respectively. The Mill's calculation spreadsheets include the necessary and appropriate emission calculations necessary to update U.S. EPA's e-GGRT database and generate each annual report.

The operators/owners of the Escanaba Mill have assigned the designated representative identified in Table 5-2. An alternate designated representative may act on behalf of the designated representative if so directed by the Manager of the Mill. Either the appointed designated representative or the appointed alternate designated representative is responsible for electronically certifying each annual GHG Summary Report that is prepared in e-GGRT in accordance with 40 CFR Part 98 requirements. The designated representative or alternate designated representative must examine all GHG calculations and supporting information prior to electronically certifying and submitting each GHG submittal. The actual submittal of each annual GHG Summary Report may also be performed by a third-party "agent" that is delegated by either the designated representative or alternate designated representative, provided that the delegated party is identified to U.S. EPA in an electronic notification. Once the information regarding the agent is received by U.S. EPA, the delegated agent remains delegated until such notice is provided removing the existing delegated agent. The Escanaba Mill recognizes that when an agent submits a report, they are not agreeing to the Certification Statement, but rather submitting the Certification Statement on behalf of the designated representative or alternate designated representative who is agreeing to the Certification Statement. An agent is only authorized to make the electronic submission on behalf of the designated representative, not to sign (i.e., agree to) the certification statement.

5.4 CORRECTING REPORTED DATA

The annual GHG inventory reports will be corrected if errors are discovered. The Escanaba Mill will submit a revised GHG report to U.S. EPA within 45 days of the identification of a reporting error. As part of the correction process, the Escanaba Mill will identify the original error and provide the corrected data.

5.5 DATA ARCHIVING

Records related to the GHG inventory program will be maintained for a minimum of three (3) years. The format of all records may be electronic or hard copy and must be made available to U.S. EPA for review upon request. A copy of the information that is required to be archived is contained in Table 5-4.

5.6 GHG MONITORING PLAN UPDATING

U.S. EPA requires that the GHG Monitoring Plan be updated to reflect changes to the Mill, to the approach used to calculate annual GHG, or to reflect changes in the requirements of Part 98. The Escanaba Mill will review the GHG Monitoring Plan periodically. As part of the review, the following items will be considered:

- Applicability of new source categories.
- Changes to monitoring instrumentation/methods
- Improvements in monitoring techniques to reduce missing data or instrument downtime.
- Changes to QA/QC procedures.

The Escanaba Mill will document and record any revisions to the GHG Monitoring Plan in Table 5-5.

Table 5-1
Fuel Use Measurement Recordkeeping Methods
Verso Escanaba LLC - Escanaba, MI

Table 5-1
Fuel Use Measurement Recordkeeping Methods
Verso Escanaba LLC - Escanaba, MI

Fuel	Method of Measurement
Natural Gas	Natural gas sent to the mill is measured and invoiced through the DTE metering system. Once it enters into the mill, it is sent to the various users. The Mill meters the largest users of natural gas in the mill. They are: The Nos. 7, 8, 9, & 11 boilers, the Recovery Furnace, the Thermal Oxidizer, the Lime Kiln, and the Nos. 1 and 3 coaters. The rest of the natural gas is not metered inside the mill. The difference from what the above users consume and what we are invoiced for is allocated to other users throughout the mill using an analysis of the various heating loads from an internal audit made in the mill.
No. 6 Fuel Oil	Fuel oil consumed in the mill is measured by the inventory method (Beginning inventory in the tank plus receipts minus the ending inventory is used to determine usage). This is compared to the flow (PI tag data) of the three users – No. 8 Boiler, Recovery Furnace and the Lime Kiln. If there is a vast difference between the numbers, an investigation is completed to rectify the discrepancy. No. 8 Boiler is the only source required to have carbon testing done on fuel oil. The suppliers agreed to provide HHV(BTU) analyses with every fuel lot but not carbon content. Because fuel oil is not routinely used in No. 8 Boiler and because the tank holds one million gallons, samples will be analyzed monthly instead of per fuel lot. This sampling method will provide representative results of the carbon content in fuel oil.
Coal	Coal consumed in the mill is measured by the inventory method (Beginning inventory plus receipts minus ending inventory). This is compared to the measured data (PI tag) based on the scaled weight. The only user of coal is No. 11 boiler.
Bark/Wood Residue	Bark consumed in the mill is measured by the inventory method. Two boilers burn bark - No. 9 and No. 11. The usage determined by the inventory method is allocated to the boilers based on their PI tag scaled usage.
TDF	TDF consumed in the mill is measured by the inventory method. This is compared to the measured (PI tag) data. The PI tag data is calculated using the average weight per bucket multiplied by the number of buckets mixed with the bark, Pellet Fuel, and sludge each shift. No. 11 is the only boiler that burns TDF.
Sludge	Sludge is measured by truck counts. The number of truckloads is multiplied by the average weight per truckload. This fuel is not charged internally. Sludge, bark, Pellet Fuel, and TDF are all mixed together at specific ratios before being fed into No. 11 boiler. No. 11 is the only boiler that burns sludge.
Pellet Fuel	Pellet Fuel consumed in the mill is measured by the inventory method. This is compared to the measured (PI tag) data. The PI tag data is calculated using the average weight per bucket multiplied by the number of buckets mixed with the bark, TDF, and sludge each shift. No. 11 is the only boiler that burns Pellet Fuel.
No. 2 Diesel Fuel Oil	No. 2 diesel was burned in the Recovery Furnace in 2009 for a Black Liquor tax credit. It is not anticipated that No. 2 Diesel Fuel will be burned by any of the combustion processes in the future. A measurement system will be developed if No. 2 Fuel Oil is burned in the future.
Black Liquor	Black liquor flow and solids are measured with on-line instrumentation in the Boiler House. The fuel is not charged off in SAP. See Table 4-5 for more details.

Table 5-2
Positions Involved with GHG Reporting
Verso Escanaba LLC - Escanaba, MI

Table 5-2
Positions Involved with GHG Reporting
Verso Escanaba LLC - Escanaba, MI

Task	Personnel	Frequency
Personnel Training	Environmental Engineer	As Needed
Direct Fuel Measurement Device Calibration	E&I Maintenance Supervisor-Kraft Mill and E&I Maintenance Supervisor-Boiler House	Refer to Tables 4-1 through 4-5 and the I&M Plan in Appendix C
Non-Direct Measurement Data Collection	Senior Financial Analyst & Environmental Engineer	Annual
Fuel Sampling	Technical Services Fuel Sampler	Refer to Tables 4-1 through 4-5 and the SOP Manual in Appendix B
GHG Emissions Calculations	Environmental Engineer and Corporate Energy Database Manager	Annual
GHG Emissions Annual Report	Designated Representative - Refer to Table 5-3	Annual

Table 5-3
Designated Representative and Alternate Designated Representative
Verso Escanaba LLC - Escanaba, MI

Table 5-3
Designated Representative and Alternate Designated Representative
Verso Escanaba LLC - Escanaba, MI

Contact Info	Designated Representative	Alternate Representative (if any)
Name	Adam Becker	
Title	Environmental Engineer	Environmental Manager
Address	7100 county Rd 426, Escanaba, MI 49829	7100 county Rd 426, Escanaba, MI 49829
E-Mail Address	adam.becker@versoco.com	
Telephone	906-233-2929	
Facsimile	906-233-2266	906-233-2266

Table 5-4
Archived GHG Information
Verso Escanaba LLC - Escanaba, MI

Table 5-4
Archived GHG Information
Verso Escanaba LLC - Escanaba, MI

All subject units
GHG Monitoring Plan
Affected operations (pulp and paper, combustion, WWTP, landfill, etc.)
Raw data by subject units (fuel types, raw materials)
GHG calculations and methodology
Analytical results
Mill operating data or process information by year and used in GHG calculations
Copies of GHG annual reports
Missing data computations (dates, reason for missing data, actions to minimize future missing data)
Results of certifications and QA test of CEMs and other instrumentation used to generate GHG annual reports
Results of calibration accuracy tests
Revisions of annual reports

Table 5-5
GHG Monitoring Plan Revisions Log
Verso Escanaba LLC - Escanaba, MI

Table 5-5
GHG Monitoring Plan Revisions Log
Verso Escanaba LLC - Escanaba, MI

Date	Authorized by	Revision Description ***Document Section/Page Number*** ***Regulatory Citation*** ***Brief Revision Description and Justification***
5/1/2012	Bill Racine	Updated Table C-1; Incorporated Subpart TT into Sections 3.6, 3.8.3, 3.9, and Table 2-2; Added Table 3-13 for Subpart TT calculations; Removed Appendix containing Draft notification correspondence; Removed Tables 3-15 through 3-20; Incorporated CEMs monitoring on No. 11 Boiler into Section 3.4.4; Updated Section 3.9 to account for reporting in e-GGRT; Updated Section 4.2 to reflect current practices; Adjusted Tier applicability in 3.5.1 for the Lime Kiln and Section 3.5.3 for Chemical Recovery Furnace; Revised Section 5.3; Added Table TT-1 to Appendix
6/12/2014	Paula LaFleur	Updated Tables C-1, C-2, AA-1, AA-2, TT-1 based on November 2013 revisions to the GHG reporting rule. Updated the GWPs. Revised the GHG emissions spreadsheet to accommodate the addition of pellet fuel firing in the No. 11 boiler. Revised the GHG emissions spreadsheet to accommodate the newly added regulatory waste stream classification "industrial sludge." Revised Subpart TT calculations to show the classifications of waste streams in accordance with 40 CFR Part 98. Incorporated 40 CFR Part 98 Subpart PP into the GHG emissions spreadsheet. Revised the lime kiln GHG requirements in accordance with the provisions applicable to the Mill under 40 CFR Part 98 Subpart PP.
5/3/2016	Paula LaFleur	Updated section 3.1 "Tier 4 required" language to match rule changes. Updated section 3.4.4, No. 11 Boiler Emissions Unit Information to reflect the use of Tier 2 and 3. Deleted Tier 4 language. Section 3.9.1, modifed missing carbon content language to include TDF and coal.
3/7/2019	Adam Becker	Updated company name due to change and Designated Representative.
3/24/2020	Adam Becker	Updated Table 3-7 to reflect the change from Tier 4 calculation to Tier 3 calculations for No. 11 Boiler.

APPENDIX A -
40 CFR PART 98 EMISSION FACTOR TABLES

Table C-1

40 CFR Part 98

Table C-1 of Subpart C

Default CO_2 Emission Factors and High Heat Value for Various Types of Fuel

Fuel Type	Default High Heat Value	Default CO_2 Emission Factor
Coal and Coke	**MMBtu/short ton**	**kg CO_2/MMBtu**
Anthracite	25.09	103.69
Bituminous	24.93	93.28
Subbituminous	17.25	97.17
Lignite	14.21	97.72
Coal Coke	24.80	113.67
Mixed (Commercial Sector)	21.39	94.27
Mixed (Industrial Coking)	26.28	93.90
Mixed (Industrial Sector)	22.35	94.67
Mixed (Electric Power Sector)	19.73	95.52
Natural Gas	**MMBtu/scf**	**kg CO_2/MMBtu**
(Weighted U.S. Average)	1.026E-03	53.06
Petroleum Products	**MMBtu/gallon**	**kg CO_2/MMBtu**
Distillate Fuel Oil No. 1	0.139	73.25
Distillate Fuel Oil No. 2	0.138	73.96
Distillate Fuel Oil No. 4	0.146	75.04
Distillate Fuel Oil No. 5	0.140	72.93
Distillate Fuel Oil No. 6	0.150	75.10
Used Oil	0.138	74.00
Kerosene	0.135	75.20
Liquefied Petroleum Gases (LPG)	0.092	61.71
Propane	0.091	62.87
Propylene	0.091	67.77
Ethane	0.068	59.60
Ethanol	0.084	68.44
Ethylene	0.058	65.96
Isobutane	0.099	64.94
Isobutylene	0.103	68.86
Butane	0.103	64.77
Butylene	0.105	68.72
Naphtha (<401 deg F)	0.125	68.02
Natural Gasoline	0.110	66.88
Other Oil (>401 deg F)	0.139	76.22
Pentanes Plus	0.110	70.02
Petrochemical Feedstocks	0.125	71.02
Petroleum Coke	0.143	102.41
Special Naphtha	0.125	72.34
Unfinished Oils	0.139	74.54
Heavy Gas Oils	0.148	74.92
Lubricants	0.144	74.27
Motor Gasoline	0.125	70.22
Aviation Gasoline	0.120	69.25
Kerosene-Type Jet Fuel	0.135	72.22
Asphalt and Road Oil	0.158	75.36
Crude Oil	0.138	74.54
Other Fuels - Solid	**MMBtu/short ton**	**kg CO_2/MMBtu**
Municipal Solid Waste	9.95	90.7
Tires	28.00	85.97
Plastics	38.00	75.00
Petroleum Coke	30.00	102.41
Other Fuels - Gaseous	**MMBtu/scf**	**kg CO_2/MMBtu**
Blast Furnace Gas	9.200E-05	274.32
Coke Oven Gas	5.990E-04	46.85
Propane Gas	2.516E-03	61.46
Fuel Gas	1.388E-03	59.00
Biomass Fuels - Solid	**MMBtu/short ton**	**kg CO_2/MMBtu**
Wood and Wood Residuals (dry basis)	17.48	93.80
Agricultural Byproducts	8.25	118.17
Peat	8.00	111.84
Solid Byproducts	10.39	105.51
Biomass Fuels - Gaseous	**MMBtu/scf**	**kg CO_2/MMBtu**
Landfill Gas	4.85E-04	52.07
Other Biomass Gas	6.55E-04	52.07
Biomass Fuels - Liquid	**MMBtu/gallon**	**kg CO_2/MMBtu**
Ethanol	0.084	68.44
Biodiesel (100%)	0.128	73.84
Rendered Animal Fat	0.125	71.06
Vegetable Oil	0.120	81.55

Table C-2
40 CFR Part 98

Table C-2 of Subpart C
Default CH_4 and N_2O Emission Factors for Various Types of Fuel

Fuel Type	Default CH_4 Emission Factor (kg CH_4/MMBtu)	Default N_2O Emission Factor (kg N_2O/MMBtu)
Coal and Coke (All fuel types in Table C-1)	1.10E-02	1.60E-03
Natural Gas	1.00E-03	1.00E-04
Petroleum (All fuel types in Table C-1)	3.00E-03	6.00E-04
Fuel Gas	3.00E-03	6.00E-04
Municipal Solid Waste	3.20E-02	4.20E-03
Tires	3.20E-02	4.20E-03
Blast Furnace Gas	2.20E-05	1.00E-04
Coke Oven Gas	4.80E-04	1.00E-04
Biomass Fuels-Solid (All fuel types in Table C-1, except wood and wood residuals)	3.20E-02	4.20E-03
Wood and wood residuals	7.20E-03	3.60E-03
Biomass Fuels - Gaseous (All fuel types in Table C-1)	3.20E-03	6.30E-04
Biomass Fuels - Liquid (All fuel types in Table C-1)	1.10E-03	1.10E-04

Table AA-1
40 CFR Part 98

Table AA-1 of Subpart AA
Kraft Pulping Liquor Emissions Factors for Biomass-Based CO_2, CH_4, and N_2O

Wood Furnish	Biomass-Based Emissions Factors (kg/MMBtu HHV)		
	CO_2	CH_4	N_2O
North American Softwood	94.4	0.0019	0.00042
North American Hardwood	93.7	0.0019	0.00042
Bagasse	95.5	0.0019	0.00042
Bamboo	93.7	0.0019	0.00042
Straw	95.1	0.0019	0.00042

Table AA-2
40 CFR Part 98

Table AA-2 of Subpart AA
Kraft Lime Kiln and Calciner Emissions Factors for CH4 and N2O

Fuel	Fossil Fuel-Based Emissions Factors (kg/MMBtu HHV)			
	Kraft lime kilns		Kraft calciners	
	CH_4	N_2O	CH_4	N_2O
Residual Oil (any type)	0.0027	0.000	0.0027	0.0003
Distillate Oil (any type)	0.0027	0.000	0.0027	0.0004
Natural Gas	0.0027	0.000	0.0027	0.0001
Biogas	0.0027	0.000	0.0027	0.0001
Petroleum Coke	0.0027	0.000	N/A[(a)]	N/A[(a)]
Other Fuels	See Table C-2	0.000	See Table C-2	See Table C-2

(a) Emission factors for kraft calciners are not available.

Table TT-1
40 CFR Part 98

Table TT-1 of Subpart TT

Default DOC and Decay Rate Values for Industrial Waste Landfills

Industry/Waste Type	DOC (weight fraction, wet basis)	k [dry climate[a]] (yr^{-1})	k [moderate climate[a]] (yr^{-1})	k [wet climate[a]] (yr^{-1})
Food Processing (other than industrial sludge)	0.22	0.06	0.12	0.18
Pulp and Paper (other than industrial sludge)	0.20	0.02	0.03	0.04
Wood and Wood Product (other than industrial sludge)	0.43	0.02	0.03	0.04
Construction and Demolition	0.08	0.02	0.03	0.04
Industrial Sludge	0.09	0.02	0.04	0.06
Inert Waste [i.e., wastes listed in §98.460(c)(2)]	0.00	0.00	0.00	0.00
Other Industrial Solid Waste (not otherwise listed)	0.20	0.02	0.04	0.06

Notes:

(a) The applicable climate classification is determined based on the annual rainfall plus the recirculated leachate application rate. Recirculated leachate application rate (inches/year) is the total volume of leachate recirculated and applied to the landfill divided by the area of the portion of the landfill containing waste (with appropriate unit conversions).

(1) Dry climate = precipitation plus recirculated leachate less than 20 inches/year.

(2) Moderate climate = precipitation plus recirculated leachate from 20 to 40 inches/year (inclusive).

(3) Wet climate = precipitation plus recirculated leachate greater than 40 inches/year.

(b) The above table is comprised of DOC and k values from Table TT-1 to Subpart TT of Part 98 as Revised in November 2013.

APPENDIX B - GHG FUEL SAMPLING PLAN

Sampling Procedures for Tire Derived Fuel (TDF), Sludge, Woodwaste, Pellet Fuel, No. 6 Fuel Oil, Black Liquor, & Coal

Revised March 8, 2017

Analyses:

TDF (Monthly) - Moisture, Ash, High Heating Value (HHV or BTU), Sulfur, and Wire Content, Carbon Content
TDF (Annual) - Metals, Mercury, Wire Content, & Moisture
Pellet Fuel - Moisture, Ash, High Heating Value (HHV or BTU), and Sulfur
Sludge - Moisture, Ash, and HHV (BTU)
Woodwaste – Moisture, Ash, and HHV (BTU)
Fuel Oil - Carbon Content (CHN)
Black Liquor - Moisture, Ash, & HHV (BTU)
Coal (Annual) - Moisture, Ash, HHV (BTU), & Sulfur
Note: See the example Chain of Custodies at L:\Local Initiatives\Environmental\ENVIRO\Air\GHG\Lab Analyses\Chain of Custodies

Sample ID's: TDF, Pellet Fuel, Sludge, Woodwaste No. 6 Fuel Oil, Black Liquor, & Coal

Sample Type: Grabs, composited into representative sample. See Collection Section.

Sample Frequency:

TDF, Sludge, Woodwaste & Pellet Fuel - Weekly samples composited into monthly composite.
Black Liquor – Quarterly Sample
No. 6 Fuel Oil – Monthly Sample
Coal - Annual Sample for ROP compliance (EU No. 11, VI.5 & 6)
TDF (Metals) - Annual Sample for ROP compliance (EU No. 11, VI.5 & 6)

Collection:

TDF, Sludge, Woodwaste & Pellet Fuel (Monthly) – These fuels are all stored on the Woodwaste and Coal Pad. There is a lot of heavy traffic in this area. Drive very carefully and notify the Woodwaste & Coal Area at 2464 when you will be sampling.

Note: Occasionally there is no sludge on the pad, in this case call the wastewater treatment plant operator at 2451 and get a sample from the waste treatment plant. If there is no pellet fuel on the pad, omit this sample.

1. Each week, select 5 representative sampling locations evenly spaced around each pile. **Please note that woodwaste includes woodwaste, bark, and fines. These materials are stored in several piles. To be sure you get some woodwaste, bark, and fines you can collect the already mixed woodwaste sample that the Hough drivers put into No. 11 Boiler. This is a representative sample.**
2. At each sampling site, dig into the pile at least 18", at about waist height.
3. Insert a clean shovel into the hole and withdraw a representative sample.

4. Place sludge samples into clean jars. Place TDF, Woodwaste and Pellet Fuel samples into clean plastic Ziploc bags. Seal all samples and mark the containers with contents and the date sampled.
5. At the end of the month, mix all the weekly samples in their separate containers then composite the weekly samples into one monthly sample. The TDF, Woodwaste and Pellet Fuel samples are to be placed into gallon-size Ziploc bags and double bagged. The sludge sample is to be placed into a clean glass jar provided by the lab.
6. Label samples either TDF, Sludge, Woodwaste or Pellet Fuel and fill out the appropriate Chain-of Custody. (See L:\Local Initiatives\Environmental\ENVIRO\Air\ GHG\Lab Analyses\Chain of Custodies).

No. 6 Fuel Oil (Monthly) – The Fuel Tester collects these samples. Get the Fuel Oil sample from the Fuel Tester once per month. Store the sample in a well marked clean glass container. Label the sample as No. 6 Fuel Oil and fill out the appropriate Chain-of Custody.

Black Liquor (Quarterly) - The Fuel Tester collects these samples each week. Get a Black Liquor sample from the Fuel Tester once per quarter as opposed to weekly. The sample is to be placed into a clean glass jar provided by the lab. Label the sample as Black Liquor and fill out the appropriate Chain-of Custody.

Coal (Annual) - The Fuel Tester collects these samples. Get the coal sample from the Fuel Tester once per year. Store the sample in a well marked clean container. Label the sample as Coal and fill out the appropriate Chain-of Custody.

TDF (Annual) – You can use a portion of the monthly TDF sample for this annual sample.

Preservative: None of the samples need to be preserved or shipped on ice.

Shipping: Send the samples to ALS for analysis on a monthly basis. **Fuel Oil samples and Black Liquor samples must be shipped separately and must be accompanied by their MSDS's. Talk to the Shipping Department before sending Fuel Oil or Black Liquor samples. The TDF, sludge, woodwaste, pellet fuel, and coal samples can be shipped together.** All Samples should be shipped Fed Ex Overnight as some are considered hazardous and Accounting wants the results as asap.

ALS
3860 S. Palo Verde Rd., Suite 302
Tucson, Arizona 85714

Holding Time: Six Months

Call Adam Becker @ 2929 with any questions. ALS can be contacted at 520-573-1061 or contact Wendy Hyatt at Wendy.Hyatt@alsglobal.com.

APPENDIX C -
GHG INSPECTION & MAINTENANCE PLAN

Inspection and Maintenance Plan for Title V and Greenhouse Gas Compliance

File 8.24.4

Note: See Other Tab for the Title V I&M Plan

2017

Area	Equipment	Required Preventative Maintenance	Functional Location PM is written to	Frequency of Work	Who Performs the Work	Maintenance Plan Numbers/Recordkeeping
Kraft Mill	Lime Kiln #6 Fuel Oil Flow Meter Rosemount Model 3051C dP Flowmeter	Calibrate meter to loop sheet specs. Verify signal to Foxboro.	EM-CRC-LKN1-290400	Annually when burning fuel oil	Kraft Mill E&I Technicians	55563
Kraft Mill	Lime Kiln to PCC Plant Flue Gas Flow Meter Rosemount Annubar 3051SFA1G300ZSHPH2T100T31DA1A5Q4M5 29-FX-0458	Calibrate meter to loop sheet specs. Verify signal to Foxboro.	EM-UTL-COMP-290458	Annually	Kraft Mill E&I Technicians	63431
Boilerhouse	No. 8 Boiler #6 Fuel Oil Flow Meter Moore 340D2AH12BNNN13	Calibrate meter to loop sheet specs. Verify signal to Foxboro.	EM-PWB-BL08-130105	Annually	BoHo E&I Technicians	55562
	No. 8 Boiler Natural Gas Flow Meter Moore 344BN5N1N	Calibrate all 4 transmitters, 13-DP-103B, 13-DP-103A, 13-TX-0103, 13-PX-0103	EM-PWB-BL08-130103	Annually	BoHo E&I Technicians	54202
	#6 Fuel Oil Tank Level Indicator Rosemount Model 3051S1LD3AA…. (Flange Mounted) New in 3/13/12	Calibrate Transmitter to loop sheet specs. Verify Signal in Foxboro	EM-PWB-BL08-130144	Annually	BoHo E&I Technicians	54203
	No. 9 Boiler Natural Gas Flow Meter Moore 340DDBHABBNN213	Calibrate Transmitter to loop sheet specs. Verify Signal in Foxboro	EM-PWB-BL09-030108	Annually	BoHo E&I Technicians	54204
	No.11 Boiler Natural Gas Flow Meter Rosemount 1151EP4E22M2B3L1	Calibrate Transmitter to loop sheet specs. Verify Signal in Foxboro	EM-PWB-BL11-682804	Annually	BoHo E&I Technicians	54187
	No. 10 Rec Furnace BLS Flow Yokogawa 210DN-AA1-LSA/ND & two Yokogawa ADMG AXR040G-E1AH1L-CA11-21B (recirc).	There are 3 Mag Flow Meters. These meters are sent to the manufacturer for calibration. This was last done on 10/14/09. The two recirc flow meters were installed calibrated in October of 2012.	EM-CRB-BL10-150203 EM-CRB-BL10-150210	As needed	Outside Source (Graftel, Inc in Elk Grove Village, IL did it last)	54206
	No. 10 Rec Furnace #6 Fuel Oil Flow to Aux Burners Rosemount 3051CD2A22AIAJI	Calibrate Transmitter to loop sheet specs. Verify Signal in Foxboro	EM-CRB-BL10-150407	Annually	BoHo E&I Technicians	54188
	No. 11 Boiler CO2 Analyzer Sick Model GM 35-3 L-68-0516	Perform quarterly cylinder gas audits and maintain as necessary. There is a 3 month PM on this as well.	EM-PWB-BL11-680516	Quarterly CGAs and /or annual RATAs plus there is a 3 month PM on this	BoHo E&I Technicians	56031

Risk Management Plan

Section 1. Registration Information

1.1 Source Identification	
1.1.a. Facility Name	Escanaba Paper Company
1.1.b. Parent Company #1 Name	Verso Corporation
1.1.c. Parent Company #2 Name	
1.2 EPA Facility Identifier	100000144453
1.3 Other EPA Systems Facility Identifier	49829MDPBLCOUNT
1.4 Dun and Bradstreet Numbers (DUNS)	
1.4.a. Facility DUNS	030179782
1.4.b. Parent Company #1 DUNS	197533446
1.4.c. Parent Company #2 DUNS	
1.5 Facility Location	
1.5.a. Street - Line 1	7100 County Road 426
1.5.b. Street - Line 2	
1.5.c. City	Escanaba
1.5.d. State	MI
1.5.e. Zip Code - Zip +4 Code	49829
1.5.f. County	DELTA
1.5.g. Facility Latitude (in decimal degrees)	45.804889
1.5.h. Facility Longitude (in decimal degrees)	-087.094361
1.5.i. Method for determining Lat/Long	Interpolation - Map
1.5.j. Description of location identified by Lat/Long	Plant Entrance (General)
1.5.k. Horizontal Accuracy Measure (meters)	25
1.5.l. Horizontal Reference Datum Code	North American Datum of 1927
1.5.m. Source Map Scale Number	24000
1.6 Owner or Operator	
1.6.a. Name	Escanaba Paper Company
1.6.b. Phone	(906) 786-1660
1.6.c. Street - Line 1	7100 County Road 426
1.6.d. Street - Line 2	
1.6.e. City	Escanaba
1.6.f. State	MI
1.6.g. Zip Code - Zip +4 Code	49829
Foreign Country	
Foreign State/Province	
Foreign Zip/Postal Code	
1.7 Name, title and email address of person or position responsible for RMP (part 68) implementation	
1.7.a. Name of person	Todd Downey
1.7.b. Title of person or position	Mill Manager
1.7.c. Email address of person or position	Todd.Downey@versoco.com

Section 1. Registration Information

1.8 Emergency Contact	
1.8.a. Name	Loss Prevention Officer
1.8.b. Title of person or position	LPO
1.8.c. Phone	(906) 786-1660
1.8.d. 24-Hour Phone	(906) 786-1660
1.8.e. 24-Hour Phone Extension/PIN #	
1.8.f. Email address for emergency contact	William.Cobb@versoco.com
1.9 Other Points of Contact	
1.9.a. Facility or Parent Company E-mail Address	
1.9.b. Facility Public Contact Phone Number	(906) 786-1660
1.9.c. Facility or Parent Company WWW Homepage Address	www.versoco.com
1.10 Local Emergency Planning Committee (LEPC)	Delta County LEPC
1.11 Number of fulltime equivalent (FTEs) employees on site	950
1.12 Covered by	
1.12.a. OSHA PSM	Y
1.12.b. EPCRA section 302	Y
1.12.c. CAA Title V Air Operating Permit Program	Y
1.12.d. Air Operating Permit ID #	199600346
1.13 OSHA Star or Merit Ranking	
1.14 Last Safety Inspection (by an External Agency) Date	09/14/2015
1.15 Last Safety Inspection Performed by an External Agency	State occupational safety agency
1.16 Will this RMP involve Predictive Filing?	
1.18 RMP Preparer Information	
1.18.a. Name	Bill Cobb
1.18.b. Phone	(906) 233-2942
1.18.c. Street - Line 1	7100 Couty Road 426
1.18.d. Street - Line 2	
1.18.e. City	Escanaba
1.18.f. State	MI
1.18.g. Zip	49829
Foreign Country	
Foreign State/Province	
Foreign Zip Code	

Section 1. Registration Information

Section 1.17 Process Specific Information

Process 1

Process ID #	**1000069552**		
Process Description	**ClO2 Storage Tanks**		
1.17.a. Program Level	3		
1.17.b. NAICS Code(s)			
32212 (Paper Mills)			
1.17.c. Chemical(s)			
	Chemical Name	**CAS Number**	**Quantity**
	Chlorine dioxide [Chlorine oxide (ClO2)]	10049-04-4	19935

Section 1. Registration Information

Section 1.17 Process Specific Information

Process 2

Process ID #	1000069553		
Process Description	Water Treatment NH3 Tank		
1.17.a. Program Level	3		
1.17.b. NAICS Code(s)			
22132 (Sewage Treatment Facilities)			
1.17.c. Chemical(s)			
	Chemical Name	CAS Number	Quantity
	Ammonia (anhydrous)	7664-41-7	54591

Section 1. Registration Information

Section 1.17 Process Specific Information

Process 3

Process ID #	1000069554		
Process Description	Bay Chlorine 1-ton cyl		
1.17.a. Program Level	3		
1.17.b. NAICS Code(s)			
32212 (Paper Mills)			
1.17.c. Chemical(s)			

	Chemical Name	CAS Number	Quantity
	Chlorine	7782-50-5	8000

Section 2. Toxics: Worst Case

Scenario 1

Process Name	Bay Chlorine 1-ton cyl
2.1 Chemical	
2.1.a. Name	Chlorine
2.1.b. Percent Weight of Chemical	100
2.2 Physical State	Gas liquified by pressure
2.3 Model Used	EPA's RMP*Comp(TM)
2.4 Scenario	Gas Release
2.5 Quantity Released (lbs)	2000
2.6 Release Rate (lbs/min)	110
2.7 Release Duration (mins)	10
2.8 Wind Speed (meters/sec)	1.5
2.9 Atmospheric stability class	F
2.10 Topography	Urban
2.11 Distance to endpoint (miles)	0.9
2.12 Estimated residential population within distance to endpoint (numbers)	572
2.13 Public receptors within distance to endpoint	
2.13.a. Schools	
2.13.b. Residences	Y
2.13.c. Hospitals	
2.13.d. Prison/Correctional Facilities	
2.13.e. Recreational Areas	
2.13.f. Major commercial, office or industrial areas	Y
2.13.g. Other	
2.14 Environmental receptors within distance to endpoint	
2.14.a. National or State Parks, Forests or Monuments	
2.14.b. Officially Designated Wildlife Sanctuaries, Preserves or Refuges	
2.14.c. Federal Wilderness Area	
2.14.d. Other	
2.15 Passive mitigation considered	
2.15.a. Dikes	
2.15.b. Enclosures	Y
2.15.c. Berms	
2.15.d. Drains	
2.15.e. Sumps	
2.15.f. Other	
2.16 Graphic file	

Section 2. Toxics: Worst Case

Scenario 2

Process Name	Water Treatment NH3 Tank
2.1 Chemical	
2.1.a. Name	Ammonia (anhydrous)
2.1.b. Percent Weight of Chemical	100
2.2 Physical State	Gas liquified by pressure
2.3 Model Used	EPA's RMP*Comp(TM)
2.4 Scenario	Gas Release
2.5 Quantity Released (lbs)	54591
2.6 Release Rate (lbs/min)	5460
2.7 Release Duration (mins)	10
2.8 Wind Speed (meters/sec)	1.5
2.9 Atmospheric stability class	F
2.10 Topography	Rural
2.11 Distance to endpoint (miles)	4
2.12 Estimated residential population within distance to endpoint (numbers)	11381
2.13 Public receptors within distance to endpoint	
2.13.a. Schools	Y
2.13.b. Residences	Y
2.13.c. Hospitals	
2.13.d. Prison/Correctional Facilities	
2.13.e. Recreational Areas	Y
2.13.f. Major commercial, office or industrial areas	Y
2.13.g. Other	
2.14 Environmental receptors within distance to endpoint	
2.14.a. National or State Parks, Forests or Monuments	Y
2.14.b. Officially Designated Wildlife Sanctuaries, Preserves or Refuges	
2.14.c. Federal Wilderness Area	
2.14.d. Other	
2.15 Passive mitigation considered	
2.15.a. Dikes	
2.15.b. Enclosures	
2.15.c. Berms	
2.15.d. Drains	
2.15.e. Sumps	
2.15.f. Other	
2.16 Graphic file	

Section 2. Toxics: Worst Case

Scenario 3

Process Name	ClO2 Storage Tanks
2.1 Chemical	
2.1.a. Name	Chlorine dioxide [Chlorine oxide (ClO2)]
2.1.b. Percent Weight of Chemical	1.2
2.2 Physical State	Liquid
2.3 Model Used	EPA's OCA Guidance Reference Tables or Equations
2.4 Scenario	Liquid spill and vaporization
2.5 Quantity Released (lbs)	8924
2.6 Release Rate (lbs/min)	165
2.7 Release Duration (mins)	55
2.8 Wind Speed (meters/sec)	1.5
2.9 Atmospheric stability class	F
2.10 Topography	Urban
2.11 Distance to endpoint (miles)	17
2.12 Estimated residential population within distance to endpoint (numbers)	37392
2.13 Public receptors within distance to endpoint	
2.13.a. Schools	Y
2.13.b. Residences	Y
2.13.c. Hospitals	Y
2.13.d. Prison/Correctional Facilities	
2.13.e. Recreational Areas	Y
2.13.f. Major commercial, office or industrial areas	Y
2.13.g. Other	
2.14 Environmental receptors within distance to endpoint	
2.14.a. National or State Parks, Forests or Monuments	Y
2.14.b. Officially Designated Wildlife Sanctuaries, Preserves or Refuges	
2.14.c. Federal Wilderness Area	
2.14.d. Other	
2.15 Passive mitigation considered	
2.15.a. Dikes	Y
2.15.b. Enclosures	
2.15.c. Berms	
2.15.d. Drains	Y
2.15.e. Sumps	
2.15.f. Other	
2.16 Graphic file	

Section 3. Toxics: Alternative Release

Scenario 1

Process Name	Water Treatment NH3 Tank
3.1 Chemical	
3.1.a. Name	Ammonia (anhydrous)
3.1.b. Percent Weight of Chemical	100
3.2 Physical State	Gas liquified by pressure
3.3 Model Used	Areal Locations of Hazardous Atmospheres [ALOHA(R)]
3.4 Scenario	1/2" break causing gaseous release
3.5 Quantity Released (lbs)	45
3.6 Release Rate (lbs/min)	1
3.7 Release Duration (mins)	45
3.8 Wind Speed (meters/sec)	3
3.9 Atmospheric stability class	D
3.10 Topography	Rural
3.11 Distance to endpoint (miles)	0.1
3.12 Estimated residential population within distance to endpoint (numbers)	0
3.13 Public receptors within distance to endpoint	
3.13.a. Schools	
3.13.b. Residences	
3.13.c. Hospitals	
3.13.d. Prison/Correctional Facilities	
3.13.e. Recreational Areas	
3.13.f. Major commercial, office or industrial areas	
3.13.g. Other	
3.14 Environmental receptors within distance to endpoint	
3.14.a. National or State Parks, Forests or Monuments	
3.14.b. Officially Designated Wildlife Sanctuaries, Preserves or Refuges	
3.14.c. Federal Wilderness Area	
3.14.d. Other	
3.15 Passive mitigation considered	
3.15.a. Dikes	
3.15.b. Enclosures	Y
3.15.c. Berms	
3.15.d. Drains	
3.15.e. Sumps	
3.15.f. Other	
3.16 Active mitigation considered	
3.16.a. Sprinkler systems	
3.16.b. Deluge systems	
3.16.c. Water curtain	
3.16.d. Neutralization	
3.16.e. Excess flow valve	Y

Section 3. Toxics: Alternative Release

3.16.f. Flares	
3.16.g. Scrubbers	
3.16.h. Emergency shutdown systems	Y
3.16.i. Other	
3.17 Graphic file	

Section 3. Toxics: Alternative Release

Scenario 2

Process Name	ClO2 Storage Tanks
3.1 Chemical	
3.1.a. Name	Chlorine dioxide [Chlorine oxide (ClO2)]
3.1.b. Percent Weight of Chemical	1.2
3.2 Physical State	Liquid
3.3 Model Used	EPA's RMP*Comp(TM)
3.4 Scenario	Pipe leak
3.5 Quantity Released (lbs)	240
3.6 Release Rate (lbs/min)	8
3.7 Release Duration (mins)	30
3.8 Wind Speed (meters/sec)	3
3.9 Atmospheric stability class	D
3.10 Topography	Urban
3.11 Distance to endpoint (miles)	0.1
3.12 Estimated residential population within distance to endpoint (numbers)	0
3.13 Public receptors within distance to endpoint	
3.13.a. Schools	
3.13.b. Residences	
3.13.c. Hospitals	
3.13.d. Prison/Correctional Facilities	
3.13.e. Recreational Areas	
3.13.f. Major commercial, office or industrial areas	
3.13.g. Other	
3.14 Environmental receptors within distance to endpoint	
3.14.a. National or State Parks, Forests or Monuments	
3.14.b. Officially Designated Wildlife Sanctuaries, Preserves or Refuges	
3.14.c. Federal Wilderness Area	
3.14.d. Other	
3.15 Passive mitigation considered	
3.15.a. Dikes	Y
3.15.b. Enclosures	Y
3.15.c. Berms	
3.15.d. Drains	Y
3.15.e. Sumps	
3.15.f. Other	
3.16 Active mitigation considered	
3.16.a. Sprinkler systems	
3.16.b. Deluge systems	
3.16.c. Water curtain	
3.16.d. Neutralization	Y
3.16.e. Excess flow valve	

Section 3. Toxics: Alternative Release

3.16.f. Flares	
3.16.g. Scrubbers	
3.16.h. Emergency shutdown systems	Y
3.16.i. Other	
3.17 Graphic file	

Section 3. Toxics: Alternative Release

Scenario 3

Process Name	Bay Chlorine 1-ton cyl
3.1 Chemical	
3.1.a. Name	Chlorine
3.1.b. Percent Weight of Chemical	100
3.2 Physical State	Gas liquified by pressure
3.3 Model Used	EPA's RMP*Comp(TM)
3.4 Scenario	Failure of fusible plug-1/4" hole
3.5 Quantity Released (lbs)	675
3.6 Release Rate (lbs/min)	34.3
3.7 Release Duration (mins)	60
3.8 Wind Speed (meters/sec)	3
3.9 Atmospheric stability class	D
3.10 Topography	Urban
3.11 Distance to endpoint (miles)	0.1
3.12 Estimated residential population within distance to endpoint (numbers)	0
3.13 Public receptors within distance to endpoint	
3.13.a. Schools	
3.13.b. Residences	
3.13.c. Hospitals	
3.13.d. Prison/Correctional Facilities	
3.13.e. Recreational Areas	
3.13.f. Major commercial, office or industrial areas	Y
3.13.g. Other	
3.14 Environmental receptors within distance to endpoint	
3.14.a. National or State Parks, Forests or Monuments	
3.14.b. Officially Designated Wildlife Sanctuaries, Preserves or Refuges	
3.14.c. Federal Wilderness Area	
3.14.d. Other	
3.15 Passive mitigation considered	
3.15.a. Dikes	
3.15.b. Enclosures	Y
3.15.c. Berms	
3.15.d. Drains	
3.15.e. Sumps	
3.15.f. Other	
3.16 Active mitigation considered	
3.16.a. Sprinkler systems	
3.16.b. Deluge systems	
3.16.c. Water curtain	
3.16.d. Neutralization	
3.16.e. Excess flow valve	Y

Section 3. Toxics: Alternative Release

3.16.f. Flares	
3.16.g. Scrubbers	
3.16.h. Emergency shutdown systems	Y
3.16.i. Other	
3.17 Graphic file	

Section 7. Prevention Program: Program Level 3

Program 1

Prevention Program Description:	
7.1 NAICS Code for process	
7.1.a. Process Name	1000069552 (ClO2 Storage Tanks)
7.1.b. NAICS	32212 (Paper Mills)
7.2 Chemicals	
Chlorine dioxide [Chlorine oxide (ClO2)]	
7.3 Date on which the safety information was last reviewed or revised	12/11/2015
7.4 Process Hazard Analysis (PHA)	
7.4.a. Date of last PHA or PHA update	09/30/2015
7.4.b. Technique used	
7.4.b.1. What if	
7.4.b.2. Checklist	
7.4.b.3. What if/Checklist Combined	
7.4.b.4. HAZOP	Y
7.4.b.5. Failure mode & effects analysis	
7.4.b.6. Fault tree analysis	
7.4.b.7. Other	
7.4.c. Expected or actual date of completion of all changes resulting from last PHA or PHA update	03/31/2016
7.4.d. Major hazards identified	
7.4.d.1. Toxic release	Y
7.4.d.2. Fire	Y
7.4.d.3. Explosion	Y
7.4.d.4. Runaway reaction	
7.4.d.5. Polymerization	
7.4.d.6. Overpressurization	Y
7.4.d.7. Corrosion	Y
7.4.d.8. Overfilling	Y
7.4.d.9. Contamination	Y
7.4.d.10. Equipment failure	Y
7.4.d.11. Loss of cooling, heating, electricity, instrument air	Y
7.4.d.12. Earthquake	
7.4.d.13. Floods	
7.4.d.14. Tornado	
7.4.d.15. Hurricanes	
7.4.d.16. Other	
7.4.e. Process controls in use	
7.4.e.1. Vents	Y
7.4.e.2. Relief valves	Y
7.4.e.3. Check valves	Y
7.4.e.4. Scrubbers	Y
7.4.e.5. Flares	

Section 7. Prevention Program: Program Level 3

7.4.e.6. Manual shutoffs	Y
7.4.e.7. Automatic shutoffs	Y
7.4.e.8. Interlocks	Y
7.4.e.9. Alarms and procedures	Y
7.4.e.10. Keyed bypass	
7.4.e.11. Emergency air supply	Y
7.4.e.12. Emergency power	Y
7.4.e.13. Backup pump	Y
7.4.e.14. Grounding equipment	Y
7.4.e.15. Inhibitor additions	
7.4.e.16. Rupture disks	Y
7.4.e.17. Excess flow device	Y
7.4.e.18. Quench system	
7.4.e.19. Purge system	
7.4.e.20. None	
7.4.e.21. Other	
7.4.f. Mitigation systems in use	
7.4.f.1. Sprinkler system	
7.4.f.2. Dikes	Y
7.4.f.3. Fire walls	
7.4.f.4. Blast walls	
7.4.f.5. Deluge system	
7.4.f.6. Water curtain	
7.4.f.7. Enclosure	
7.4.f.8. Neutralization	Y
7.4.f.9. None	
7.4.f.10. Other	
7.4.g. Monitoring/detection systems in use	
7.4.g.1. Process area detectors	Y
7.4.g.2. Perimeter monitors	
7.4.g.3. None	
7.4.g.4. Other	
7.4.h. Changes since last PHA update	
7.4.h.1. Reduction in chemical inventory	
7.4.h.2. Increase in chemical inventory	
7.4.h.3. Change in process parameters	
7.4.h.4. Installation of process controls	Y
7.4.h.5. Installation of process detection systems	
7.4.h.6. Installation of perimeter monitoring systems	
7.4.h.7. Installation of mitigation systems	
7.4.h.8. None recommended	
7.4.h.9. None	
7.4.h.10. Other	
7.5 Date of most recent review or revision of operating procedures	09/21/2015

Section 7. Prevention Program: Program Level 3

7.6 Training	
7.6.a. Date of most recent review or revision of training programs	11/30/2015
7.6.b. Type of training provided	
7.6.b.1. Classroom	Y
7.6.b.2. On the job	Y
7.6.b.3. Other	CBT
7.6.c. Type of competency testing used	
7.6.c.1. Written test	Y
7.6.c.2. Oral test	
7.6.c.3. Demonstration	Y
7.6.c.4. Observation	
7.6.c.5. Other	
7.7 Maintenance	
7.7.a. Date of most recent review or revision of maintenance procedures	06/02/2015
7.7.b. Date of most recent equipment inspection or test	06/04/2015
7.7.c. Equipment most recently inspected or tested (equipment list)	Inspect barometric condenser
7.8 Management of change	
7.8.a. Date of most recent changes that triggered management of change procedures	12/16/2015
7.8.b. Date of most recent review or revision of management of change procedures	08/01/2015
7.9 Date of most recent pre-startup review	12/17/2015
7.10 Compliance audits	
7.10.a. Date of most recent compliance audits	06/20/2013
7.10.b. Expected or actual date of completion of all changes resulting from the most recent compliance audits	01/28/2014
7.11 Incident investigation	
7.11.a. Date of most recent incident investigation	07/31/2006
7.11.b. Expected or actual date of completion of all changes resulting from the incident investigation	11/15/2006
7.12 Date of most recent review or revision of employee participation plans	11/01/2013
7.13 Date of most recent review or revision of hot work permit procedures	11/05/2015
7.14 Date of most recent review or revision of contractor safety procedures	06/02/2015
7.15 Date of most recent evaluation of contractor safety performance	02/01/2016

Section 7. Prevention Program: Program Level 3

Program 2

Prevention Program Description:	
7.1 NAICS Code for process	
7.1.a. Process Name	1000069553 (Water Treatment NH3 Tank)
7.1.b. NAICS	22132 (Sewage Treatment Facilities)
7.2 Chemicals	
Ammonia (anhydrous)	
7.3 Date on which the safety information was last reviewed or revised	12/11/2015
7.4 Process Hazard Analysis (PHA)	
7.4.a. Date of last PHA or PHA update	11/22/2011
7.4.b. Technique used	
7.4.b.1. What if	
7.4.b.2. Checklist	
7.4.b.3. What if/Checklist Combined	Y
7.4.b.4. HAZOP	
7.4.b.5. Failure mode & effects analysis	
7.4.b.6. Fault tree analysis	
7.4.b.7. Other	
7.4.c. Expected or actual date of completion of all changes resulting from last PHA or PHA update	10/17/2012
7.4.d. Major hazards identified	
7.4.d.1. Toxic release	Y
7.4.d.2. Fire	Y
7.4.d.3. Explosion	Y
7.4.d.4. Runaway reaction	
7.4.d.5. Polymerization	
7.4.d.6. Overpressurization	Y
7.4.d.7. Corrosion	Y
7.4.d.8. Overfilling	Y
7.4.d.9. Contamination	Y
7.4.d.10. Equipment failure	Y
7.4.d.11. Loss of cooling, heating, electricity, instrument air	Y
7.4.d.12. Earthquake	
7.4.d.13. Floods	
7.4.d.14. Tornado	
7.4.d.15. Hurricanes	
7.4.d.16. Other	
7.4.e. Process controls in use	
7.4.e.1. Vents	Y
7.4.e.2. Relief valves	Y
7.4.e.3. Check valves	Y
7.4.e.4. Scrubbers	
7.4.e.5. Flares	

Section 7. Prevention Program: Program Level 3

7.4.e.6. Manual shutoffs	Y
7.4.e.7. Automatic shutoffs	Y
7.4.e.8. Interlocks	Y
7.4.e.9. Alarms and procedures	Y
7.4.e.10. Keyed bypass	
7.4.e.11. Emergency air supply	Y
7.4.e.12. Emergency power	Y
7.4.e.13. Backup pump	Y
7.4.e.14. Grounding equipment	Y
7.4.e.15. Inhibitor additions	
7.4.e.16. Rupture disks	
7.4.e.17. Excess flow device	Y
7.4.e.18. Quench system	
7.4.e.19. Purge system	
7.4.e.20. None	
7.4.e.21. Other	
7.4.f. Mitigation systems in use	
7.4.f.1. Sprinkler system	
7.4.f.2. Dikes	
7.4.f.3. Fire walls	
7.4.f.4. Blast walls	
7.4.f.5. Deluge system	
7.4.f.6. Water curtain	
7.4.f.7. Enclosure	
7.4.f.8. Neutralization	
7.4.f.9. None	Y
7.4.f.10. Other	
7.4.g. Monitoring/detection systems in use	
7.4.g.1. Process area detectors	Y
7.4.g.2. Perimeter monitors	
7.4.g.3. None	
7.4.g.4. Other	
7.4.h. Changes since last PHA update	
7.4.h.1. Reduction in chemical inventory	
7.4.h.2. Increase in chemical inventory	
7.4.h.3. Change in process parameters	
7.4.h.4. Installation of process controls	
7.4.h.5. Installation of process detection systems	
7.4.h.6. Installation of perimeter monitoring systems	
7.4.h.7. Installation of mitigation systems	
7.4.h.8. None recommended	
7.4.h.9. None	Y
7.4.h.10. Other	
7.5 Date of most recent review or revision of operating procedures	12/21/2015

Section 7. Prevention Program: Program Level 3

7.6 Training	
7.6.a. Date of most recent review or revision of training programs	12/21/2015
7.6.b. Type of training provided	
7.6.b.1. Classroom	Y
7.6.b.2. On the job	Y
7.6.b.3. Other	CBT
7.6.c. Type of competency testing used	
7.6.c.1. Written test	Y
7.6.c.2. Oral test	
7.6.c.3. Demonstration	Y
7.6.c.4. Observation	Y
7.6.c.5. Other	
7.7 Maintenance	
7.7.a. Date of most recent review or revision of maintenance procedures	01/12/2015
7.7.b. Date of most recent equipment inspection or test	01/12/2015
7.7.c. Equipment most recently inspected or tested (equipment list)	Annual ammonia safety valve inspection
7.8 Management of change	
7.8.a. Date of most recent changes that triggered management of change procedures	04/23/2006
7.8.b. Date of most recent review or revision of management of change procedures	08/01/2015
7.9 Date of most recent pre-startup review	04/25/2006
7.10 Compliance audits	
7.10.a. Date of most recent compliance audits	06/20/2013
7.10.b. Expected or actual date of completion of all changes resulting from the most recent compliance audits	01/28/2014
7.11 Incident investigation	
7.11.a. Date of most recent incident investigation	
7.11.b. Expected or actual date of completion of all changes resulting from the incident investigation	
7.12 Date of most recent review or revision of employee participation plans	11/01/2013
7.13 Date of most recent review or revision of hot work permit procedures	11/05/2015
7.14 Date of most recent review or revision of contractor safety procedures	
7.15 Date of most recent evaluation of contractor safety performance	02/01/2016

Section 7. Prevention Program: Program Level 3

Program 3

Prevention Program Description:	
7.1 NAICS Code for process	
7.1.a. Process Name	1000069554 (Bay Chlorine 1-ton cyl)
7.1.b. NAICS	32212 (Paper Mills)
7.2 Chemicals	
Chlorine	
7.3 Date on which the safety information was last reviewed or revised	12/11/2015
7.4 Process Hazard Analysis (PHA)	
7.4.a. Date of last PHA or PHA update	05/09/2012
7.4.b. Technique used	
7.4.b.1. What if	
7.4.b.2. Checklist	
7.4.b.3. What if/Checklist Combined	Y
7.4.b.4. HAZOP	
7.4.b.5. Failure mode & effects analysis	
7.4.b.6. Fault tree analysis	
7.4.b.7. Other	
7.4.c. Expected or actual date of completion of all changes resulting from last PHA or PHA update	11/01/2012
7.4.d. Major hazards identified	
7.4.d.1. Toxic release	Y
7.4.d.2. Fire	Y
7.4.d.3. Explosion	Y
7.4.d.4. Runaway reaction	
7.4.d.5. Polymerization	
7.4.d.6. Overpressurization	Y
7.4.d.7. Corrosion	Y
7.4.d.8. Overfilling	Y
7.4.d.9. Contamination	Y
7.4.d.10. Equipment failure	Y
7.4.d.11. Loss of cooling, heating, electricity, instrument air	Y
7.4.d.12. Earthquake	
7.4.d.13. Floods	
7.4.d.14. Tornado	
7.4.d.15. Hurricanes	
7.4.d.16. Other	
7.4.e. Process controls in use	
7.4.e.1. Vents	Y
7.4.e.2. Relief valves	Y
7.4.e.3. Check valves	Y
7.4.e.4. Scrubbers	
7.4.e.5. Flares	

Section 7. Prevention Program: Program Level 3

7.4.e.6. Manual shutoffs	Y
7.4.e.7. Automatic shutoffs	Y
7.4.e.8. Interlocks	Y
7.4.e.9. Alarms and procedures	Y
7.4.e.10. Keyed bypass	
7.4.e.11. Emergency air supply	
7.4.e.12. Emergency power	Y
7.4.e.13. Backup pump	Y
7.4.e.14. Grounding equipment	Y
7.4.e.15. Inhibitor additions	
7.4.e.16. Rupture disks	
7.4.e.17. Excess flow device	Y
7.4.e.18. Quench system	
7.4.e.19. Purge system	
7.4.e.20. None	
7.4.e.21. Other	
7.4.f. Mitigation systems in use	
7.4.f.1. Sprinkler system	
7.4.f.2. Dikes	
7.4.f.3. Fire walls	
7.4.f.4. Blast walls	
7.4.f.5. Deluge system	
7.4.f.6. Water curtain	
7.4.f.7. Enclosure	Y
7.4.f.8. Neutralization	
7.4.f.9. None	
7.4.f.10. Other	
7.4.g. Monitoring/detection systems in use	
7.4.g.1. Process area detectors	Y
7.4.g.2. Perimeter monitors	
7.4.g.3. None	
7.4.g.4. Other	
7.4.h. Changes since last PHA update	
7.4.h.1. Reduction in chemical inventory	
7.4.h.2. Increase in chemical inventory	
7.4.h.3. Change in process parameters	
7.4.h.4. Installation of process controls	
7.4.h.5. Installation of process detection systems	
7.4.h.6. Installation of perimeter monitoring systems	
7.4.h.7. Installation of mitigation systems	
7.4.h.8. None recommended	Y
7.4.h.9. None	
7.4.h.10. Other	
7.5 Date of most recent review or revision of operating procedures	12/21/2015

Section 7. Prevention Program: Program Level 3

7.6 Training	
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7.6.b. Type of training provided	
7.6.b.1. Classroom	Y
7.6.b.2. On the job	Y
7.6.b.3. Other	CBT
7.6.c. Type of competency testing used	
7.6.c.1. Written test	Y
7.6.c.2. Oral test	
7.6.c.3. Demonstration	Y
7.6.c.4. Observation	
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7.7 Maintenance	
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7.7.b. Date of most recent equipment inspection or test	02/06/2015
7.7.c. Equipment most recently inspected or tested (equipment list)	chlorine vacuum regulator, station 3
7.8 Management of change	
7.8.a. Date of most recent changes that triggered management of change procedures	07/21/2014
7.8.b. Date of most recent review or revision of management of change procedures	08/01/2015
7.9 Date of most recent pre-startup review	07/21/2014
7.10 Compliance audits	
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7.10.b. Expected or actual date of completion of all changes resulting from the most recent compliance audits	01/28/2014
7.11 Incident investigation	
7.11.a. Date of most recent incident investigation	
7.11.b. Expected or actual date of completion of all changes resulting from the incident investigation	
7.12 Date of most recent review or revision of employee participation plans	11/01/2013
7.13 Date of most recent review or revision of hot work permit procedures	11/05/2015
7.14 Date of most recent review or revision of contractor safety procedures	02/04/2016
7.15 Date of most recent evaluation of contractor safety performance	02/01/2016

Section 9. Emergency Response

9.1 Written emergency response (ER) plan	
9.1.a. Is your facility included in the written community emergency response plan?	Y
9.1.b. Does your facility have its own written emergency response plan?	Y
9.2 Does your facility's ER plan include specific actions to be taken in response to accidental releases of regulated substances?	Y
9.3 Does your facility's ER plan include procedures for informing the public and local agencies responding to accidental releases?	Y
9.4 Does your facility's ER plan include information on emergency health care?	Y
9.5 Date of most recent review or update of your facility's ER plan	12/14/2015
9.6 Date of most recent ER training for your facility's employees	10/23/2015
9.7 Local agency with which your facility's ER plan or response activities are coordinated	
9.7.a. Name of agency	Delta County LEPC
9.7.b. Phone number	(906) 786-5911
9.8 Subject to	
9.8.a. OSHA Regulations at 29 CFR 1910.38	Y
9.8.b. OSHA Regulations at 29 CFR 1910.120	Y
9.8.c. Clean Water Act Regulations at 40 CFR 112	Y
9.8.d. RCRA Regulations at 40 CFR 264, 265, 279.52	Y
9.8.e. OPA-90 Regulations at 40 CFR 112, 33 CFR 154, 49 CFR 194, 30 CFR 254	Y
9.8.f. State EPCRA Rules of Laws	Y
9.8.g. Other	

Executive Summary

Escanaba Paper Company

1. EXECUTIVE SUMMARY

The Escanaba Paper Company (EPC) is committed to operating in a manner that is safe for employees, the public, and the environment. As part of this commitment, EPC has established a system to help ensure safe operation of the processes at this facility. Two components of this system are a Process Safety Management (PSM) program that helps manage the risk and that complies with the requirements of the Occupational Safety and Health Administration (OSHA) regulation 29 CFR 1910.119, Process Safety Management of Highly Hazardous Chemicals; and a risk management program (RMP) that complies with the requirements of the Environmental Protection Agency (EPA) regulation 40 CFR part 68, Accidental Release Prevention Requirements: Risk Management Programs (the RMP rule). One of the requirements of the RMP rule is to submit a risk management plan (RMPlan) describing the risk management program at EPC. This document is intended to satisfy the RMP requirements of the rule and to provide the public with a description of our risk management program.

The process safety and risk management program at EPC consists of three elements:

A hazard assessment to help understand (a) the potential off-site consequences of hypothetical accidental releases and (b) accidents that have occurred during the last five years associated with the use of substances regulated by the RMP rule (regulated substances) - see topics 1.3 and 1.5

A prevention program to help maintain and safely operate the processes containing more than a threshold quantity of a regulated substance (covered processes) - see topic 1.4

An emergency response program to help respond to accidental releases of regulated substances from covered processes - see topic 1.6

Information further describing these elements is provided in this RMPlan.

Although the risk management program at EPC helps provide assurance that the facility is maintained and operated in a safe manner, it is only one component of the safety program at EPC. In fact, EPC has a comprehensive safety program in place establishing many levels of safeguard against release of a hazardous substance and resultant injuries or damage from such a release.

EPC limits the use of hazardous substances. Prior to using a hazardous substance, less hazardous alternatives are considered. When a hazardous substance is used at EPC, consideration is given to the potential for this substance to adversely affect employees, the public, as well as the environment.

Continuous Monitoring System Quality Assurance Plan

VERSO ESCANABA LLC

Continuous Monitoring System Quality Assurance Plan

3/26/2020

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1 INTRODUCTION

It is the policy of the Verso Escanaba LLC (VE) - Escanaba, MI pulp and paper mill (Mill) to efficiently operate and maintain its facility in accordance with good operating practices (GOP) and applicable environmental regulations. VE is committed to ensuring that all environmental systems are operating within acceptable limits and that its operations are in compliance with environmental permits. VE recognizes that the reliability and acceptability of the continuous emission monitoring system (CEMS) and continuous opacity monitoring system (COMS) data depend on completion of all activities stipulated in a well-defined quality assurance and quality control plan (QA/QC Plan or Plan). The objective of this QA/QC Plan is to define the necessary activities to ensure that the CMS data quality is maintained at acceptable levels and regulatory requirements.

QA and QC procedures serve independent functions. QC is the series of activities performed to ensure that a quality product or service is produced. QA involves those activities undertaken to determine that the QC functions are effective in maintaining the minimum quality of the product (i.e., CEMS/COMS data). QC functions often comprise a series of frequent internal checks, such as system inspections, periodic calibrations, and routine maintenance. QA involves external checks to confirm that the quality control procedures are adequate to meet the level of precision required for the system. External quality assurance evaluations may include independent system audits, third party sampling and analysis, and/or comparisons to known calibration standards. This Plan encompasses both QA and QC functions and identifies which function is fulfilled by the specific activity.

2 NITROGEN OXIDES (NO_X)

The nitrogen oxides (NO_X) continuous emission rate monitoring system (CERMS) consists of a sampling and conditioning system, NO_X analyzer, oxygen (O_2) analyzer, and a data acquisition and handling system (DAHS). All of these components are necessary to determine an NO_X emission rate in terms of lbs NO_X/MMBtu. This section of the QAP addresses the quality assurance requirements for the NO_X concentration monitoring system. Information regarding the ancillary monitoring systems used to determine lbs NO_X/MMBtu can be found elsewhere in this QAP as noted in Table 2-1.

Table 2-1
NO_X Monitoring System Summary
Verso Escanaba LLC - Escanaba, MI Mill

Monitoring System	Component(s)	QAP Reference
lbs NO_X/MMBtu	NO_X	Section 2
	O_2	Section 4

2.1 *AFFECTED SOURCES*

NO_X CEMS are installed, operated, and maintained on the sources listed in Table 2-2.

Table 2-2
NO_X CEMS Summary
Verso Escanaba LLC - Escanaba, MI Mill

Emission Unit ID	Emission Unit Description
EG8B13	B8 – No. 8 Boiler
EU11B68	B11 – No. 11 Boiler

2.2 *EMISSION LIMITATIONS*

NO_X CEMS are operated to demonstrate compliance with the emission limitations summarized in Table 2-3.

Table 2-3
NO_X Emission Limitation Summary
Verso Escanaba LLC - Escanaba, MI Mill

Emission Unit	Emission Limitation	Units	Averaging Period
B8 **[Natural Gas]**	0.20	lbs/MMBtu	Ozone Season[(a)]
B8 **[Residual Oil]**	0.40	lbs/MMBtu	Ozone Season[(a)]
B8 **[All Fuels]**	0.35	lbs/MMBtu	30-day rolling average
B11 **[Coal, Wood Residue, and/or Paper Mill Sludge]**	0.70	lbs/MMBtu	30-day rolling average
B11 **[Fossil Fuels]**	Fuel Based[(b)]	lbs/MMBtu	Ozone Season[(a)]

(a) Compliance with the applicable NO_X emission rate (i.e., lbs/MMBtu) is averaged over the ozone season starting on May 1 and ending on September 30 on each calendar year.
(b) During years the boiler meets the definition of a fossil fuel-fired unit at §R336.1801(1)(b), the emission limitation is determined based on the percentage of heat input each fuel supplied to B11 during the ozone season and the applicable emission limits specified in §R336.1801(13) Table 81.

2.3 *MONITORING REQUIREMENTS*

NO_X CEMS are required pursuant to the applicable monitoring regulations summarized in Table 2-4.

Table 2-4
Applicable NO_X Monitoring Requirements
Verso Escanaba LLC - Escanaba, MI Mill

Emission Unit	Applicable Monitoring Regulation	Quality Assurance Activity Basis
B8	R336.1801(11)	40 CFR 60 Appendix F, P1 ***OR*** 40 CFR 75[a]
B8	40 CFR 52.1183(i)	40 CFR 60 Appendix F, P1
B11	40 CFR 60 Subpart D	40 CFR 60 Appendix F, P1

[a] VE elected to comply with the quality assurance procedures in 40 CFR 60 Appendix F, P1 for the B8 NO_X CEMS.

2.3.1 Monitoring System Description

2.3.1.1 Sampling and Conditioning System

Stack gas is delivered to the NO_X analyzer via an extractive sampling and conditioning system. The heated sample probe is installed at a specific location in the stack to collect the most representative stack gas samples. The probe, filter, and sample line are heated to prevent water condensation in the sampling system. The moisture in the stack gas is removed prior to the sample pump and analyzer using a condenser type moisture removal system. The condensers cool the gas below the dew point (using refrigerated coils), and then remove the condensed liquid water from the gas stream. Water removal is performed automatically to prevent filling the condensate trap and flooding the sampling line. The conditioned stack gas is passed through a particulate filter and a diaphragm sample pumps prior to being delivered to the analyzer rack. The sampling system is designed in a manner not to pressurize the analyzer during normal sampling or routine calibrations.

2.3.1.2 NO_X Analyzer

The concentration of nitrogen oxides (NO_X) is measured by using a chemiluminescence NO_X analyzer. Chemiluminescence is the emission of light produced as a result of a chemical reaction. A chemiluminescence nitrogen oxide (NO) and NO_X monitor measures the amount of light generated by the reaction of NO present in the stack gas with ozone (O_3). This monitor uses an ozone generator and a heated converter to reduce the nitrogen dioxide (NO_2) present in the stack gas to NO before reacting with O_3.

The monitor can measure both NO or NO_X by sequencing the NO and O_3 reaction. NO present in the stack gas is measured by bypassing the converter and going directly to the reaction chamber. NO_X (i.e., NO and NO_2) is measured by using the converter to reduce NO_2 to NO prior to the reaction chamber. NO_2 can be determined by subtracting the NO measured by the first sequence from the total NO_X (i.e., NO and NO_2) measured in the sequence.

2.3.1.3 Data Acquisition and Handling Systems

The data acquisition and handling system (DAHS) includes the CEMS hardware and software components that take the output from the analyzers, combine it with other information, store the necessary data, and compute emissions.

Table 2-5
NO_X CEMS Major Component Summary
Verso Escanaba LLC - Escanaba, MI Mill

Analyzer	Analyzer Information			Measurement Parameters					Comment
	Manufacturer	Model No.	Serial No.	Span	Range	Units	Dilution Ratio	Basis	
No. 8 Boiler									
Probe & Umbilical									
Sample Conditioning System									Removes moisture from stack gas prior to analysis.
NO_X Analyzer	Thermo Environmental Instruments, Inc.	42Iq-ANMSPCB	1181030037	1000	1000	ppmv		dry	Span defined in 40 CFR §60.45(c)(3)(i) is not applicable to B8. Span is not defined in the applicable standard for B8 (i.e., R336.1801 or 40 CFR 52.1183(i)). As such, VE has selected the span noted of 1000 ppm.
DAHS	Foxboro I/A								
No. 11 Boiler									
Probe & Umbilical									
Sample Conditioning System									Removes moisture from stack gas prior to analysis.
NO_X Analyzer	Thermo Environmental Instruments	42I-ANMSPCB	1308857366	1000	1000	ppmv		dry	Span defined in 40 CFR §60.45(c)(3)(i).
DAHS	Foxboro I/A								

2.4 Installation and Initial Certification

The installation and initial certification of the NO_X concentration monitoring system was completed in accordance with applicable Performance Specification (PS) in 40 CFR 60 Appendix B. Documentation of the certification is located in Section 8.9.4 of the Environmental Files. Initial certification of the NO_X concentration monitoring system will only be required upon the installation of a new NO_X monitoring system. The applicable PS is summarized in Table 2-6.

Table 2-6
Applicable Performance Specification
Verso Escanaba LLC - Escanaba, MI Mill

Analyzer	Applicable Performance Specification (PS)	Reference
NO_X	PS2	40 CFR 60 Appendix B

2.5 Ongoing Quality Assurance Activities

The quality of the data collected by the NO_X concentration monitoring system is assessed by the completion of ongoing quality assurance (QA) procedures. The QA procedures for the NO_X concentration monitoring system are summarized in Table 2-7.

Table 2-7
Ongoing Quality Assurance Frequency
Verso Escanaba LLC - Escanaba, MI Mill

Monitoring System	Daily	Weekly	Monthly	Quarterly	Semi-annually	Annual
NO_X	CDT [a] Section 2.5.1.1			CGA [b] Section 2.5.2.1		RATA [c] Section 2.5.3.1

[a] Calibration Drift Test (CDT)
[b] Cylinder Gas Audit (CGA)
[c] Relative Accuracy Test Audit (RATA)

2.5.1 Daily

The following QA activities are completed at least once daily (i.e., every 24 hours) on the NO_X concentration monitoring system. The daily QA activities performed on the NO_X concentration monitoring system include a calibration drift test (CDT).

2.5.1.1 Calibration Drift Test (CDT)

A calibration drift test (CDT) is completed by the Mill pursuant to 40 CFR 60 Appendix F, P1 §4.1 at least once every 24 hours in accordance with the procedures described herein. A CDT is automatically initiated every 24 hours by the Programmable Logic Controller (PLC). The PLC energizes normally closed solenoid valves to allow the reference gas to be introduced to the sample probe. The reference gas is transported from the gas cylinder up to the sample probe and then travels down to the analyzer rack through the stack sample lines. This includes all of the sample line filters, dilution systems (as applicable), scrubbers, conditioners, and other sampling system components. The solenoid valve is energized introducing the reference gas for a pre-determined time interval adequate for the CEMS to measure and record a stable response. A zero and span gas check are run at least every 24-hours. Additional CDT, if required, may be initiated by the Mill manually throughout the 24 hour period.

2.5.1.1.1 Span Value

Span is defined in 40 CFR 60 Appendix B Performance Specification 2 §3.11 as the concentration specified for the affected source category in an applicable subpart of the regulations that is used to set the calibration gas concentration and in determining calibration drift. The span values for the NO_X monitoring systems are summarized in Table 2-8.

Table 2-8
NO_X Span Summary
Verso Escanaba LLC - Escanaba, MI Mill

Emission Unit	Span [(a)]	Reference
B8	1000 ppm[(b)]	40 CFR §60.45(c)(3)(i)
B11	1000 ppm	40 CFR §60.45(c)(3)(i)

(a) Span is defined in 40 CFR 60 Appendix F §2.3 as the upper limit of a gas concentration measurement range that is specified for affected source categories in the applicable subpart of the regulation. Span is defined in 40 CFR 60 Appendix B Performance Specification 2 §3.11 as the concentration specified for the affected source category in an applicable subpart of the regulations that is used to set the calibration gas concentration and in determining calibration drift.

(b) Span is not defined in the applicable standards for B8 (i.e., R336.1801 and 40 CFR 52.1183(i)). As such, VE has selected the span of 1000 ppm.

2.5.1.1.2 CDT Reference Gas Concentrations

Two (2) reference gas concentrations are utilized for the CDT. The two (2) reference gas concentrations are determined based on the applicable span value as defined in Section 2.5.1.1.1. The reference gas concentrations are zero or low (e.g., between 0 and 20% of span value) and upscale (e.g., 50 to 100% of span value). The low and upscale audit gases are U.S. EPA Protocol grade calibration gases. The reference gas concentrations that are used in the CDT are summarized in Table 2-9.

Table 2-9
NO_X CDT Reference Gas Summary
Verso Escanaba LLC - Escanaba, MI Mill

Emission Unit	Zero or Low [(a),(c)]	Upscale [(b),(c)]
B8	0 – 200 ppm	500 – 1000 ppm
B11	0 – 200 ppm	500 – 1000 ppm

[(a)] Zero or low level reference gas is defined in 40 CFR §60.13(d)(1) as between 0 and 20% of the span value.
[(b)] Upscale level reference gas is defined in 40 CFR §60.13(d)(1) as between 50 and 100% of the span value.
[(c)] 40 CFR §60.13(d) is included by reference in 40 CFR 60 Subpart D and in 40 CFR 60 Appendix F, P1 §4.1.

2.5.1.1.3 CDT Calculation

The calibration drift for the NO_X analyzers are computed by the DAHS for each reference gas level as described in Equation 2-1.

Equation 2-1 $$CD = \frac{|R-A|}{SPAN} \times 100$$

Where:

CD = Calibration Drift as a percentage of the SPAN.
R = Reference value of zero or upscale concentration introduced into the monitoring system.
A = Actual monitoring system response to the reference value (R).
SPAN = Highest concentration monitor component is required to be capable of measuring as defined in Section 2.5.1.1.1.

2.5.1.1.4 CDT Pass/Fail Tolerance

Pursuant to 40 CFR §60.13(d)(1), the NO_X concentration monitors are adjusted whenever the zero CDT or the upscale CDT exceeds two (2) times the limit of the applicable performance specification listed in Section 2.4 and summarized listed in Table 2-10. Pursuant to 40 CFR 60 Appendix F, P1 §4.3, if the zero CDT or the upscale CDT exceeds twice (i.e., 2x) the applicable performance specification listed in listed in Table 2-10 for five (5), consecutive, daily periods, the CEMS is out-of-control (OOC). If either the zero (or low-level) or upscale-level CD result exceeds four times (i.e., 4x) the applicable drift specification in applicable performance specification listed in Section 2.4, the CEMS is OOC.

If the calibration drift exceeds the specification limits listed in Table 2-10 for the appropriate monitor, the failure is indicated on the maintenance calibration report generated by the DAHS.

Table 2-10
NO_X CDT Pass/Fail Tolerance
Verso Escanaba LLC - Escanaba, MI Mill

Emission Unit	Analyzer	Adjustment Limit [(a)] (Data Valid)	Out-of-Control Limit [(a)] (Data Invalid)
B8	NO_X	± 5.0% of Span OR ± 100.0 ppm NO_X	± 5.0% of Span OR ± 50.0 ppm NO_X for five (5) consecutive days
			OR
			± 10.0% of Span OR ± 100.0 ppm NO_X at any time
B11	NO_X	± 5.0% of Span OR ± 100.0 ppm NO_X	± 5.0% of Span OR ± 50.0 ppm NO_X for five (5) consecutive days
			OR
			± 10.0% of Span OR ± 100.0 ppm NO_X at any time

[(a)] Adjustments must be made to the monitoring system if the zero or upscale drift exceeds the drift tolerance by more than the listed value. Data is considered invalid and the CEMS is out-of-control (OOC) if the zero CDT or the upscale CDT exceeds twice the applicable performance specification listed in listed in Table 2-10 for five (5) consecutive, daily periods. If either the zero (or low-level) or upscale-level CD result exceeds four times the applicable drift specification in applicable performance specification listed in Section 2.4, the CEMS is also OOC.

2.5.1.1.5 CDT Failure Procedures

If the calibration drift exceeds the specification limits listed in Table 2-10 the following procedures are recommended, but not limited to:

(1) Initiation of corrective maintenance procedures to repair the CEMS.
(2) Completion of a successful CDT.

2.5.1.1.6 CDT Data Validation

Data is considered invalid and out-of-control (OOC) beginning the time corresponding to the completion of the fifth (5), consecutive, daily CDT where the zero or the upscale CDT exceeds twice (i.e., 2x) the applicable performance specification as summarized in Table 2-10 for five (5), consecutive, daily periods, or the time corresponding to the completion of the last successful CDT ***preceding*** the daily CDT check that results in a CDT in excess of four times (i.e., 4x) the allowable limit.

The end of the OOC period is the time corresponding to the completion of the CDT following corrective action (if necessary) that results in successful CDT at both the zero (or low-level) and high-level measurement points.

2.5.2 Quarterly

The following QA activities are completed at least in three (3) of four (4) calendar quarters, but in no more than three quarters in succession, on the NO_X concentration monitoring system. The quarterly QA activities performed on the NO_X concentration monitoring system include a cylinder gas audit (CGA).

2.5.2.1 Cylinder Gas Audit (CGA)

A cylinder gas audit (CGA) is completed on the NO_X concentration monitoring system in three (3) of four (4) calendar quarters, but in no more than three (3) quarters in succession. A CGA is not required during the quarter in which the relative accuracy test audit (RATA) is completed. Successive CGAs will not occur closer than 2 months.

The CGA is conducted consistent with the procedures in 40 CFR 60 Appendix F § 5.1.2. A CGA is conducted while the monitoring systems are not operating out-of-control (OOC) with respect to any required quality assurance assessments. A CGA may be done "cold" with no corrective maintenance, repair, calibration adjustments, re-linearization, or reprogramming of the monitor prior to the test. The CGA may be done after repair, corrective maintenance or reprogramming of the monitor. Once a CGA has started, no adjustments to the monitoring system will be made.

Documentation of the results of the CGAs is located in Section 8.9.2 or 8.9.6 of the Environmental Files.

The steps for conducting a CGA are as follows:

(1) The monitors are challenged with audit gases of known concentrations at two (2) points within the concentration ranges shown in Table 2-11. Audit gases are injected at the same point that the calibration gases are administered. This includes as much of the sampling system as possible (sample lines, filters, scrubbers, components exposed to the sample gas, and as much of the probe as practicable).

(2) The monitors are challenged three (3) times at each audit point. The sample line is purged in between each run at each audit point. The average of the three (3) responses for each audit point is used in determining accuracy. The monitor is challenged at each audit point for a sufficient period of time to assure that any sample gas in the lines is flushed out and the calibration gas flow has stabilized. The injection time also take into account the response time of the analyzers and sample system. The difference between the actual concentration of the audit gas and the concentration indicated by the monitor determines the accuracy of the monitor.

2.5.2.1.1 CGA Reference Gas Concentrations

Two (2) reference gas concentrations are utilized for the CGA. The two (2) reference gas concentrations are determined based on the applicable span value as defined in Section 2.5.1.1.1 or the reference gas concentrations defined in 40 CFR 60 Appendix F § 5.1.2. The reference gas concentrations for NO_X are presented in Table 2-11. The audit gases are U.S. EPA Protocol grade calibration gases and are different then the audit gases used in the CDT.

Table 2-11
NO_X CGA Reference Gas Summary
Verso Escanaba LLC - Escanaba, MI Mill

Emission Unit	Analyzer	Audit Point 1 [(a)]	Audit Point 2 [(b)]
B8	NO_X	200.0 – 300.0 ppm	500.0 – 600.0 ppm
B11	NO_X	200.0 – 300.0 ppm	500.0 – 600.0 ppm

[(a)] The audit point 1 reference gas is defined in 40 CFR 60 Appendix F § 5.1.2 as between 20 and 30% of the span value.
[(b)] Upscale level reference gas is defined in 40 CFR 60 Appendix F § 5.1.2 as between 50 and 60% of the span value.

2.5.2.1.2 CGA Accuracy Calculation

The CGA accuracy for the NO_X concentration monitoring system is calculated for each reference gas level as described in Equation 2-2.

Equation 2-2 $$A = \frac{(C_M - C_A)}{C_A} \text{ x } 100$$

Where:

A = Percent accuracy of the CEMS.

CM = Average CEMS response during audit in units of applicable standard or appropriate concentration.

CA = Average audit value in units of applicable standard or appropriate concentration.

2.5.2.1.3 CGA Pass/Fail Tolerance

The NO_X concentration monitoring system is out-of-control (OOC) and the measured data is invalid when the CGA exceeds the tolerances in Table 2-12 at any audit point. The CEMS is deemed OOC the hour in which the CGA was completed or aborted in anticipation of a CGA failure. The measured data from NO_X concentration monitoring system is considered valid the hour that a successful CGA is completed.

Table 2-12
NO_X CGA Accuracy Pass/Fail Tolerance
Verso Escanaba LLC - Escanaba, MI Mill

Analyzer	Out-of-Control Limit [a] (Data Invalid)
NO_X	± 15.0% of Average Audit Value [b]

[a] Data is considered invalid or out-of-control (OOC) and adjustments must be made to the monitoring system if the CGA accuracy tolerance is more than the listed tolerance.
[b] As determined by Equation 2-2 in Section 2.5.2.1.2.

2.5.2.1.4 CGA Failure Procedures

If the calibration drift exceeds the specification limits listed in Table 2-12 the following procedures are recommended, but not limited to:

(1) Initiation of corrective maintenance procedures to repair the CEMS.
(2) Completion of a successful CDT as described in Section 2.5.1.1.
(3) Completion of a successful CGA.

2.5.2.1.5 CGA Data Validation

The NO_X concentration monitoring system is out-of-control (OOC) and the measured data is invalid when the CGA exceeds the tolerances in Table 2-12 at any audit point. The CEMS is deemed OOC the hour in which the CGA was completed or aborted in anticipation of a CGA failure. The measured data from NO_X concentration monitoring system is considered valid the hour that a successful CGA is completed.

2.5.3 Annually

The following QA activities are completed at least once annually (i.e., every four (4) calendar quarters) on the NO_X CEMS and include a relative accuracy test audit (RATA).

2.5.3.1 Relative Accuracy Test Audit (RATA)

RATAs consist of a minimum of nine (9) comparative runs between the Mill CEMS and the U.S. EPA RM. If more than nine (9) are conducted, a maximum of three (3) may be excluded but nine (9) runs will be utilized to calculate the relative accuracy. Relative accuracy is calculated for the NO_X emission rate in terms of lbs NO_X/MMBtu. Once a RATA has started, no adjustments to the monitoring system will be made other than routine calibration adjustments following the daily CDT.

RATAs are conducted once every four (4) calendar quarters to assess the accuracy of the CEMS relative to the appropriate U.S. EPA Reference Methods (RM). RATAs are conducted in accordance with the procedures contained in the applicable PS and RM summarized in Table 2-6 and Table 2-13 respectively.

Table 2-13
NO_X RATA Reference Method Summary
Verso Escanaba LLC - Escanaba, MI Mill

Analyzer	U.S. EPA Reference Method	Reference
NO_X	7E	40 CFR 60 Appendix A
O_2	3A	40 CFR 60 Appendix A

2.5.3.1.1 RATA Unit Operating Conditions

RATAs are conducted while the sources listed in Table 2-2 are operated greater than 50% of normal load pursuant to 40 CFR Part 60 Appendix B PS-2 §8.4.1.

2.5.3.1.2 RATA Calculation

RATA results are calculated by the contracted emission test firm in accordance with the calculations in 40 CFR 60 Appendix B PS-2 §12.

2.5.3.1.3 RATA Pass/Fail Tolerance

A RATA is "failed" if the results do not meet the acceptable criteria listed in Table 2-14. If a RATA is aborted in anticipation of unacceptable results, the RATA is considered to have failed.

Table 2-14
NO_X RATA Pass/Fail Tolerance
Verso Escanaba LLC - Escanaba, MI Mill

Parameter	Units	Acceptable Performance Criteria	
		Average Reference Method	Applicable Emission Standard
NO_X Emission Rate	lbs/MMBtu	20%	10%

2.5.3.1.4 RATA Failure Procedures

If the RATA exceeds the tolerances listed in Table 2-14 the following procedures are recommended but not limited to:

(1) Initiation of corrective maintenance procedures to repair the CEMS.
(2) Completion of a successful CDT as described in Section 2.5.1.1.
(3) Completion of a successful RATA.

2.5.3.1.5 RATA Data Validation

Data collected the hour after the completion of the RATA that exceeds the tolerances in Table 2-14 is considered to be out-of-control (OOC). The beginning of the OOC period is the hour after the completion of the unsuccessful RATA. The end of the OOC period is the hour after the completion of a successful RATA.

The OOC period described above is consistent with the OOC periods defined in 40 CFR 60 Appendix F §5.2.1.

3 TOTAL REDUCED SULFUR (TRS)

The total reduced sulfur (TRS) continuous emission monitoring system (CEMS) consists of a sampling and conditioning system, TRS monitoring system, oxygen (O_2) analyzer, and a data acquisition and handling system (DAHS). All of these components are necessary to determine an O_2 corrected TRS concentration (i.e., TRS ppmvd @ 8% O_2 or TRS ppmvd @ 10% O_2).

3.1 *AFFECTED SOURCES*

TRS CEMS are installed, operated, and maintained on the sources listed in Table 3-1.

Table 3-1
TRS CEMS Summary
Verso Escanaba LLC - Escanaba, MI Mill

Emission Unit ID	Emission Unit Description
EURF15	RF10 – No. 10 Chemical Recovery Furnace
EULK29	LK – Lime Kiln

3.2 *EMISSION LIMITATIONS*

TRS CEMS are operated to demonstrate compliance with the emission limitations summarized in Table 3-2.

Table 3-2
TRS Emission Limitation Summary
Verso Escanaba LLC - Escanaba, MI Mill

Emission Unit	Emission Limitation	Units	Averaging Period
RF10	5	ppmvd @ 8% O_2	12-hr
LK	20	ppmvd @ 10% O_2	12-hr

3.3 *MONITORING REQUIREMENTS*

TRS CEMS are required pursuant to the applicable monitoring regulations summarized in Table 3-3.

Table 3-3
Applicable Monitoring Requirements
Verso Escanaba LLC - Escanaba, MI Mill

Emission Unit	Applicable Monitoring Regulation	Quality Assurance Activity Basis
RF10	40 CFR 60 Subpart BB	40 CFR §60.13(d)(1) 40 CFR 60 Appendix F, P1, §4 (CDT) 40 CFR 60 Appendix F, P1, §5.1.2 (CGA)
LK	R 336.1201	40 CFR §60.13(d)(1) 40 CFR 60 Appendix F, P1, §4 (CDT) 40 CFR 60 Appendix F, P1, §5.1.2 (CGA)

3.3.1 40 CFR 60 Subpart BB

40 CFR 60 Subpart BB requires that a TRS CEMS be installed, operated, and maintained. U.S. EPA corrected language in September 21, 2006 [FR 71 (183) 55119-55128] and subsequent correspondence from the National Council of Air and Stream Improvement, Inc. (NCASI) on October 06, 2006 which clarified that 40 CFR 60 Appendix F does not apply to TRS and O_2 CEMS used to demonstrate compliance with 40 CFR 60 Subpart BB. ***The Mill has included the daily CDT and quarterly CGA as part of this QAP; however does not consider 40 CFR 60 Appendix F applicable to the TRS CEMS used to demonstrate compliance with 40 CFR 60 Subpart BB.*** Any additional QA activities noted herein for the TRS CEMS were based on operational history of the TRS CEMS and engineering judgment. These procedures may, or may not, be consistent with 40 CFR 60 Appendix F.

In an email correspondence from Mr. Tom Gasloli of the Michigan Department of Environment, Great Lakes, and Energy (EGLE), formerly the Michigan Department of Environmental Quality (MDEQ) to Mr. Bill Racine of Verso Escanaba LLC (VE) on September 20, 2012 at 09:11 AM, EGLE and VE agreed to the following ongoing QA activities for the TRS and O_2 CEMS:

1. VE will complete daily CDT per 40 CFR 60 Appendix F, Procedure 1 (P1), §4 as described in Section 2.5.1.1.
2. VE will conduct quarterly CGAs per 40 CFR 60 Appendix F, P1, §5.1.2 in all four (4) calendar quarters as described in Section 2.5.2.1.
3. VE will submit quarterly excess emissions and monitor downtime reports.
4. VE will conduct compliance stack testing for TRS and O_2 on the RF10 and LK once per permit cycle.
5. No Relative Accuracy Test Audits (RATA) are required.

3.3.2 Monitoring System Description

3.3.2.1 Sampling and Conditioning System

Stack gas is delivered to the TRS and O_2 analyzers via an extractive sampling and conditioning system. The heated sample probe is installed at a specific location in the stack to collect the most representative stack gas samples. The probe, filter, and sample line are heated to prevent water condensation in the sampling system. The moisture in the stack gas is removed prior to the sample pump and analyzer using a condenser type moisture removal system. The condensers cool the gas below the dew point (using refrigerated coils), and then remove the condensed liquid water from the gas stream. Water removal is performed automatically to prevent filling the condensate trap and flooding the sampling line. The conditioned stack gas is passed through a particulate filter and a diaphragm sample pump prior to being delivered to the analyzer rack. The sampling system is designed in a manner not to pressurize the analyzer during normal sampling or routine calibrations.

3.3.2.2 TRS Analyzer

A sulfur dioxide (SO_2) analyzer functions as the TRS detector. A dry-base SO_2 regenerative scrubber removes only the SO_2 present in the sample stream. The TRS compounds present in the sample stream are then converted to SO_2 by a thermal oxidizer. To ensure that all of the TRS compounds are converted, a thermal oxidizer is maintained at approximately 1500 °F. The analyzer measures SO_2 concentrations using the fluorescent property of the SO_2 molecules. Fluorescence occurs when a molecule absorbs light at one wavelength; as a result of the absorbed energy, the molecule emits light at a different wavelength. The analyzer uses light (from a pulsed infrared light source) to irradiate the gas sample. The light radiated back from the sample is measured by the sensor, after filtering to select a narrow bandwidth of the fluorescent radiation. This secondary emission light output is proportional to the concentration of SO_2 in the stack gas.

3.3.2.3 O_2 Analyzer

Oxygen (O_2) concentration in the stack gas is measured using a paramagnetic O_2 analyzer. A paramagnetic analyzer quantifies O_2 based on the magnetic properties of O_2. Molecules that are attracted by a magnetic field are described as paramagnetic, while those repelled are called diamagnetic. Most molecules are diamagnetic. O_2 , however, is paramagnetic and is strongly attracted to magnetic fields compared to most other gases. The attraction of O_2 to a magnetic field is directly proportional to the O_2 concentration in the stack gas.

3.3.2.4 Data Acquisition and Handling Systems

The data acquisition and handling system (DAHS) includes the CEMS hardware and software components that take the output from the analyzers, combine it with other information, store the necessary data, and compute emissions.

Table 3-4
TRS and O_2 CEMS Major Component Summary
Verso Escanaba LLC - Escanaba, MI Mill

Analyzer	Analyzer Information			Measurement Parameters					Comment
	Manufacturer	Model No.	Serial No.	Span	Range	Units	Dilution Ratio	Basis	
No. 10 Recovery Furnace									
Probe & Umbilical									
Sample Conditioning System									Removes moisture from stack gas prior to analysis.
SO_2 Scrubber									Dry-base SO_2 regenerative scrubber removes the SO_2 present in the sample stream.
Thermal Oxidizer	Graesby STI	T01000							TRS compounds present in the sample stream are converted to SO_2 by a thermal oxidizer maintained at approximately 1500 °F.
TRS	Thermo Environmental Instruments, Inc.	43I-ANSCB	1236656185	30	0 – 30	ppmv		dry	Span defined in §60.284(a)(2)(i).
O_2	Thermo Environmental Instruments	25595003	CC0227158	25	0 – 25	%		dry	Span defined in §60.284(a)(2)(ii).
DAHS	Foxboro I/A								
Lime Kiln									
Probe & Umbilical									
Sample Conditioning System									Removes moisture from stack gas prior to analysis.
SO_2 Scrubber									Dry-base SO_2 regenerative scrubber removes the SO_2 present in the sample stream.
Thermal Oxidizer	Graesby STI	T01000							TRS compounds present in the sample stream are converted to SO_2 by a thermal oxidizer maintained at approximately 1500 °F.
TRS	Thermo Environmental Instruments	43I-ANSCB	708221178	30	0 – 30	ppmv		dry	Span defined in §60.284(a)(2)(i).
O_2	Thermo Environmental Instruments	25595003	CC031506-3	25	0 – 25	%		dry	Span defined in §60.284(a)(2)(ii).
DAHS	Foxboro I/A								

3.4 Installation and Initial Certification

The installation and initial certification of the TRS CEMS was completed in accordance with applicable Performance Specification (PS) in 40 CFR 60 Appendix B. Documentation of the certification is located in section 8.9.4 of the environmental files. Initial certification of the TRS CEMS will only be required upon the installation of a new TRS or O_2 monitoring system. The applicable PS are summarized in Table 3-5.

Table 3-5
Applicable Performance Specification
Verso Escanaba LLC - Escanaba, MI Mill

Analyzer	Applicable Performance Specification (PS)	Reference
TRS	PS5	40 CFR 60 Appendix B
O_2	PS3	40 CFR 60 Appendix B

3.5 Ongoing Quality Assurance Activities

The quality of the data collected by the TRS CEMS is assessed by the completion of ongoing quality assurance (QA) procedures. The QA procedures for the TRS CEMS are summarized in Table 3-6.

Table 3-6
Ongoing Quality Assurance Frequency
Verso Escanaba LLC - Escanaba, MI Mill

Analyzer	Daily	Weekly	Monthly	Quarterly	Semi-annually	Annual
TRS	CDT [(a)] Section 2.5.1.1			CGA [(b)] Section 2.5.2.1		
O_2	CDT [(a)] Section 2.5.1.1			CGA [(b)] Section 2.5.2.1		

[(a)] Calibration Drift Test (CDT)
[(b)] Cylinder Gas Audit (CGA)

3.5.1 Daily

The following QA activities are completed at least once daily (i.e., every 24 hours) on the TRS and O_2 CEMS. The daily QA activities performed on the TRS and O_2 CEMS include a calibration drift test (CDT).

3.5.1.1 Calibration Drift Test (CDT)

A calibration drift test (CDT) is completed by the Mill pursuant to 40 CFR §60.13(d)(1) at least once every 24 hours in accordance with the procedures described herein. A CDT is automatically initiated every 24 hours by the Programmable Logic Controller (PLC). The PLC energizes normally closed solenoid valves to allow the reference gas to be introduced to the sample probe. The reference gas is transported from the gas cylinder up to the sample probe and then travels down to the analyzer rack through the stack sample lines. This includes all of the sample line filters, dilution systems (as applicable), scrubbers, conditioners, and other sampling system components. The solenoid valve is energized introducing the reference gas for a pre-determined time interval adequate for the CEMS to measure and record a stable response. A zero and span gas check are run at least every 24-hours. Additional CDT, if required, may be initiated by the Mill manually throughout the 24 hour period.

3.5.1.1.1 Span Value

Span is defined in 40 CFR 60 Appendix B Performance Specification 2 §3.11 as the concentration specified for the affected source category in an applicable subpart of the regulations that is used to set the calibration gas concentration and in determining calibration drift. 40 CFR 60 Subpart BB is applicable to the TRS and O_2 monitoring systems. The span values for the TRS and O_2 monitoring systems are summarized in Table 3-7.

Table 3-7
TRS & O_2 Span Summary
Verso Escanaba LLC - Escanaba, MI Mill

Analyzer	Span [(a)]	Reference
TRS	30 ppm	40 CFR §60.284 (a)(2)(i)
O_2	25 %	40 CFR §60.284 (a)(2)(ii)

[(a)] Span is defined in 40 CFR 60 Appendix F §2.3 as the upper limit of a gas concentration measurement range that is specified for affected source categories in the applicable subpart of the regulation. Span is defined in 40 CFR 60 Appendix B Performance Specification 2 §3.11 as the concentration specified for the affected source category in an applicable subpart of the regulations that is used to set the calibration gas concentration and in determining calibration drift.

3.5.1.1.2 CDT Reference Gas Concentrations

Two (2) reference gas concentrations are utilized for the CDT. The two (2) reference gas concentrations are determined based on the applicable span value as defined in Section 2.5.1.1.1. The reference gas concentrations are zero or low (e.g., between 0 and 20% of span value) and upscale (e.g., 50 to 100% of span value). The low and upscale audit gases are U.S. EPA Protocol grade calibration gases. The reference gas concentrations that are used in the CDT are summarized in Table 3-8.

Table 3-8
CDT Reference Gas Summary
Verso Escanaba LLC - Escanaba, MI Mill

Analyzer	Zero or Low [(a),(c)]	Upscale [(b),(c)]
TRS	0 – 6.0 ppm	15.0 – 30.0 ppm
O_2	0 – 5.0 %	12.5 – 25.0 %

[(a)] Zero or low level reference gas is defined in 40 CFR §60.13(d)(1) as between 0 and 20% of the span value.
[(b)] Upscale level reference gas is defined in 40 CFR §60.13(d)(1) as between 50 and 100% of the span value.
[(c)] 40 CFR §60.13(d)(1) is included by reference in 40 CFR 60 Subpart BB which is applicable to the TRS and O_2 monitoring systems.

3.5.1.1.3 CDT Calculation

The calibration drift for the TRS analyzers are computed by the DAHS for each reference gas level as described in Equation 3-1.

Equation 3-1 $$CD = \frac{|R-A|}{SPAN} \text{ x } 100$$

Where:

CD = Calibration Drift as a percentage of the SPAN.
R = Reference value of zero or upscale concentration introduced into the monitoring system.
A = Actual monitoring system response to the reference value (R).
SPAN = Highest concentration monitor component is required to be capable of measuring as defined in Section 2.5.1.1.1.

The calibration drift for the O_2 analyzers are computed by the DAHS for each reference gas level as described in Equation 3-2.

Equation 3-2 $$CD = |R - A|$$

Where:

CD = Calibration Drift as a percentage of the SPAN.
R = Reference value of zero or upscale concentration introduced into the monitoring system.
A = Actual monitoring system response to the reference value (R).

3.5.1.1.4 CDT Pass/Fail Tolerance

Pursuant to 40 CFR §60.13(d)(1), the TRS and/or O_2 monitors are adjusted whenever the zero CDT or the upscale CDT exceeds two (2) times the limit of the applicable performance specification listed in Section 2.4 and summarized listed in Table 3-9. If the zero CDT or the upscale CDT exceeds twice the applicable performance specification listed in listed in Table 3-9 for five (5), consecutive, daily periods, the CEMS is out-of-control (OOC). If either the zero (or low-level) or upscale-level CD result exceeds four times the applicable drift specification in applicable performance specification listed in Section 2.4, the CEMS is OOC.

If the calibration drift exceeds the specification limits listed in Table 3-9 for the appropriate monitor, the failure is indicated on the calibration report generated by the DAHS.

Table 3-9
TRS CDT Pass/Fail Tolerance
Verso Escanaba LLC - Escanaba, MI Mill

Emission Unit	Analyzer	Adjustment Limit [(a)] (Data Valid)	Out-of-Control Limit [(a)] (Data Invalid)
RF10 LK	TRS	± 10.0% of Span OR ± 3.0 ppm TRS	± 10.0% of Span OR ± 3.0 ppm TRS for five (5) consecutive days OR ± 20.0% of Span OR ± 6.0 ppm TRS at any time

[(a)] Although 40 CFR 60 Appendix F does not specifically apply to 40 CFR 60 Subpart BB, VE does follow the CD Assessment requirements of Appendix F §4.Adjustments must be made to the monitoring system if the zero or upscale drift exceeds the drift tolerance by more than the listed value. Data is considered invalid and the CEMS is out-of-control (OOC) if the zero CDT or the upscale CDT exceeds twice (i.e., 2x) the applicable performance specification listed in listed in Table 3-9 for five (5), consecutive, daily periods. If either the zero (or low-level) or upscale-level CD result exceeds four times (i.e., 4x) the applicable drift specification in applicable performance specification listed in Section 4.4, the CEMS is also OOC.

3.5.1.1.5 CDT Failure Procedures

If the calibration drift exceeds the specification limits listed in Table 3-9 the following procedures are recommended, but not limited to:

(1) Initiation of corrective maintenance procedures to repair the CEMS.
(2) Completion of a successful CDT.

3.5.1.1.6 CDT Data Validation

Data is considered invalid and out-of-control (OOC) beginning the time corresponding to the completion of the fifth (5), consecutive, daily CDT where the zero or the upscale CDT exceeds twice (i.e., 2x) the applicable performance specification as summarized in Table 3-9 for five (5), consecutive, daily periods, or the time corresponding to the completion of the last successful CDT ***preceding*** the daily CDT check that results in a CDT in excess of four times (i.e., 4x) the allowable limit.

The end of the OOC period is the time corresponding to the completion of the CDT following corrective action (if necessary) that results in successful CDT at both the zero (or low-level) and high-level measurement points.

3.5.2 Quarterly

The following QA activities are completed at least once in each of the four (4) calendar quarters on the TRS and O_2 CEMS. The quarterly QA activities performed on the TRS and O_2 CEMS include a cylinder gas audit (CGA).

3.5.2.1 Cylinder Gas Audit (CGA)

A cylinder gas audit (CGA) is completed on the TRS and O2 monitoring systems. The CGA is conducted at least once every calendar quarter. Successive quarterly audits shall occur no closer than 2 months.

Documentation of the results of the CGAs are located in environmental files 8.9.2 and 8.9.6. The CGA is conducted consistent with the procedures in 40 CFR 60 Appendix F §5.1.2. As discussed in Section 2.3, 40 CFR 60 Appendix F is used by the Mill as "guidelines" for the development of the QA activities associated with the TRS and O_2 monitoring systems. ***40 CFR 60 Appendix F is not applicable to the TRS and O_2 monitoring systems located at the Mill.***

A CGA is conducted while the monitoring systems are not operating out-of-control (OOC) with respect to any required quality assurance assessments. A CGA may be done "cold" with no corrective maintenance, repair, calibration adjustments, re-linearization, or reprogramming of the monitor prior to the test. The CGA may be done after repair, corrective maintenance or reprogramming of the monitor. Once a CGA has started, no adjustments to the monitoring system will be made.

The steps for conducting a CGA are as follows:

(1) The TRS and O_2 monitors are challenged with audit gases of known concentrations at two (2) points within the concentration ranges shown in Table 3-10. Audit gases are injected at the same point that the calibration gases are administered. This includes as much of the sampling system as possible (sample lines, filters, scrubbers, components exposed to the sample gas, and as much of the probe as practicable).

(2) The TRS and O_2 monitors are challenged three (3) times at each audit point. The sample line is purged in between each run at each audit point. The average of the three (3) responses for each audit point is used in determining accuracy. The monitor is challenged at each audit point for a sufficient period of time to assure that any sample gas in the lines is flushed out and the calibration gas flow has stabilized. The injection time also takes into account the response time of the analyzers and the sample system. The difference between the actual concentration of the audit gas and the concentration indicated by the monitor determines the accuracy of the monitor.

3.5.2.1.1 CGA Reference Gas Concentrations

Two (2) reference gas concentrations are utilized for the CGA. The two (2) reference gas concentrations are determined based on the applicable span value as defined in Section 2.5.1.1.1 or the reference gas concentrations defined in 40 CFR 60 Appendix F § 5.1.2. The reference gas concentrations for TRS and O_2 are presented in Table 3-10. The audit gases are U.S. EPA Protocol grade calibration gases and are different then the audit gases used in the CDT.

Table 3-10
CGA Reference Gas Summary
Verso Escanaba LLC - Escanaba, MI Mill

Analyzer	Audit Point 1 [(a)]	Audit Point 2 [(b)]
TRS	6.0 – 9.0 ppm	15.0 – 18.0 ppm
O_2	4.0 – 6.0 %	8.0 – 12.0 %

[(a)] The audit point 1 reference gas is defined in 40 CFR 60 Appendix F § 5.1.2 as between 20 and 30% of the span value for TRS and between 4.0 and 6.0% O_2.
[(b)] Upscale level reference gas is defined in 40 CFR 60 Appendix F § 5.1.2 as between 50 and 60% of the span value for TRS and between 8.0 and 12.0% O_2.

3.5.2.1.2 CGA Accuracy Calculation

The CGA accuracy for the TRS and O_2 analyzers are calculated for each reference gas level as described in Equation 3-3.

Equation 3-3
$$A = \frac{(C_M - C_A)}{C_A} \text{ x } 100$$

Where:

A = Percent accuracy of the CEMS.
CM = Average CEMS response during audit in units of applicable standard or appropriate concentration.
CA = Average audit value in units of applicable standard or appropriate concentration.

3.5.2.1.3 CGA Pass/Fail Tolerance

The TRS and/or O_2 monitors are out-of-control (OOC) and the measured data is invalid when the CGA exceeds the tolerances in Table 3-11 at any audit point. The CEMS is deemed OOC the hour in which the CGA was completed or aborted in anticipation of a CGA failure. The measured data from TRS and/or O_2 monitors is considered valid the hour that a successful CGA is completed.

Table 3-11
CGA Accuracy Pass/Fail Tolerance
Verso Escanaba LLC - Escanaba, MI Mill

Analyzer	Out-of-Control Limit [a] (Data Invalid)
TRS	± 15.0% of Average Audit Value [b] OR ± 5.0 ppm TRS
O_2	± 15.0% of Average Audit Value [b]

[a] Data is considered invalid or out-of-control (OOC) and adjustments must be made to the monitoring system if the CGA accuracy tolerance is more than the listed tolerance.
[b] As determined by Equation 2-2 in Section 2.5.2.1.2.

3.5.2.1.4 CGA Failure Procedures

If the calibration drift exceeds the specification limits listed in Table 3-11 the following procedures are recommended, but not limited to:

(1) Initiation of corrective maintenance procedures to repair the CEMS.
(2) Completion of a successful CDT as described in Section 2.5.1.1.
(3) Completion of a successful CGA.

3.5.2.1.5 CGA Data Validation

The TRS and/or O_2 monitors are out-of-control (OOC) and the measured data is invalid when the CGA exceeds the tolerances in Table 3-11 at any audit point. The CEMS is deemed OOC the hour in which the CGA was completed or aborted in anticipation of a CGA failure. The measured data from TRS and/or O_2 monitors is considered valid the hour that a successful CGA is completed.

4 OXYGEN (O_2)

The oxygen (O_2) concentration monitoring system is an ancillary monitoring system to the continuous emission monitoring systems (CEMS) and continuous emission rate monitoring systems (CERMS) listed in Table 4-1. This section of the QAP addresses the quality assurance requirements for the O_2 concentration monitoring system. Information regarding the monitoring systems that depend on O_2 concentration to express emissions in terms of an applicable emission standard can be found elsewhere in this QAP as noted in Table 4-1.

Table 4-1
O_2 Concentration Monitoring System Dependents
Verso Escanaba LLC - Escanaba, MI Mill

Monitoring System	Units	Component(s)	QAP Reference
NO_X Emission Rate	lbs NO_X/MMBtu	NO_X	Section 1
		O_2	Section 4
O_2 Corrected TRS Concentration	ppmvd TRS @ 8% O_2 or ppmvd TRS @ 10% O_2	TRS	Section 3
		O_2	Section 4

4.1 *AFFECTED SOURCES*

O_2 concentration monitoring system are installed, operated, and maintained on the sources listed in Table 4-2.

Table 4-2
O_2 Concentration Monitoring System Summary
Verso Escanaba LLC - Escanaba, MI Mill

Emission Unit ID	Emission Unit Description
EG8B13	B8 – No. 8 Boiler
EU11B68	B11 – No. 11 Boiler
EURF15	RF10 – No. 10 Chemical Recovery Furnace
EULK29	LK – Lime Kiln

4.2 *EMISSION LIMITATIONS*

The O_2 concentration monitoring system is utilized as part of the CEMS and CERMS listed in Table 4-1. There are no direct O_2 concentration emission limitations.

4.3 *MONITORING REQUIREMENTS*

O_2 concentration monitoring system is required pursuant to the applicable monitoring regulations summarized in Table 4-3.

Table 4-3
O_2 Applicable Monitoring Requirements
Verso Escanaba LLC - Escanaba, MI Mill

Emission Unit	Applicable Monitoring Regulation	Quality Assurance Activity Basis
RF10	40 CFR 60 Subpart BB	40 CFR §60.13(d)(1) 40 CFR 60 Appendix F, P1, §4 (CDT) 40 CFR 60 Appendix F, P1, §5.1.2 (CGA)
LK	R336.1201	40 CFR §60.13(d)(1) 40 CFR 60 Appendix F, P1, §4 (CDT) 40 CFR 60 Appendix F, P1, §5.1.2 (CGA)
B8	R336.1801(11)	40 CFR 60 Appendix F, P1 OR 40 CFR 75[a]
B11	40 CFR 60 Subpart D	40 CFR 60 Appendix F, P1

[a] VE elected to comply with the quality assurance procedures in 40 CFR 60 Appendix F, P1 for the B8 O_2 concentration monitoring system.

4.3.1 Monitoring System Description

The O_2 concentration monitoring system major components are described below and summarized in Table 4-4.

4.3.1.1 Sampling and Conditioning System

Stack gas is delivered to the O_2 analyzer via an extractive sampling and conditioning system. The heated sample probe is installed at a specific location in the stack to collect the most representative stack gas samples. The probe, filter, and sample line are heated to prevent water condensation in the sampling system. The moisture in the stack gas is removed prior to the sample pump and analyzer using a condenser type moisture removal system. The condensers cool the gas below the dew point (using refrigerated coils), and then remove the condensed liquid water from the gas stream. Water removal is performed automatically to prevent filling the condensate trap and flooding the sampling line. The conditioned stack gas is passed through a particulate filter and a diaphragm sample pump prior to being delivered to the analyzer rack. The sampling system is designed in a manner not to pressurize the analyzer during normal sampling or routine calibrations.

4.3.1.2 O_2 Analyzer

Oxygen (O_2) concentration in the stack gas is measured using a paramagnetic O_2 analyzer. A paramagnetic analyzer quantifies O_2 based on the magnetic properties of O_2. Molecules that are attracted by a magnetic field are described as paramagnetic, while those repelled are called diamagnetic. Most molecules are diamagnetic. O_2 , however, is paramagnetic and is strongly attracted to magnetic fields compared to most other gases. The attraction of O_2 to a magnetic field is directly proportional to the O_2 concentration in the stack gas.

4.3.1.3 Data Acquisition and Handling Systems

The data acquisition and handling system (DAHS) includes the CEMS hardware and software components that take the output from the analyzers, combine it with other information, store the necessary data, and compute emissions.

Table 4-4
O_2 Concentration Monitoring System Major Component Summary
Verso Escanaba LLC - Escanaba, MI Mill

Analyzer	Analyzer Information			Measurement Parameters					Comment
	Manufacturer	Model No.	Serial No.	Span	Range	Units	Dilution Ratio	Basis	
No. 10 Recovery Furnace									
Probe & Umbilical									
Sample Conditioning System									Removes moisture from stack gas prior to analysis.
O_2	Thermo Environmental Instruments	25595003	CC0227158	25	0 – 25	%		dry	Span defined in §60.284(a)(2)(ii).
DAHS	VIM								
Lime Kiln									
Probe & Umbilical									
Sample Conditioning System									Removes moisture from stack gas prior to analysis.
O_2	Thermo Environmental Instruments	25595003	CC031506-3	25	0 – 25	%		dry	Span defined in §60.284(a)(2)(ii).
DAHS	VIM								
No. 8 Boiler									
Probe & Umbilical									
Sample Conditioning System									Removes moisture from stack gas prior to analysis.
O_2	Thermo Environmental Instruments	25595003	CC111105-5	25	0 – 25	%		dry	Span not defined.
DAHS	VIM								
No. 11 Boiler									
Probe & Umbilical									
Sample Conditioning System									Removes moisture from stack gas prior to analysis.
O_2	Thermo Environmental Instruments	25595003	CC0227157	25	0 – 25	%		dry	Span not defined.
DAHS	VIM								

4.4 Installation and Initial Certification

The installation and initial certification of the O_2 concentration monitoring system was completed in accordance with applicable Performance Specification (PS) in 40 CFR 60 Appendix B. Documentation of the certification is located in Section 8.9.4 of the Environmental Files. Initial certification of the O_2 concentration monitoring system will only be required upon the installation of a new O_2 concentration monitoring system. The applicable PS is summarized in Table 4-5.

Table 4-5
Applicable Performance Specification
Verso Escanaba LLC - Escanaba, MI Mill

Monitoring System	Applicable Performance Specification (PS)	Reference
O_2	PS3	40 CFR 60 Appendix B

4.5 Ongoing Quality Assurance Activities

The quality of the data collected by the O_2 concentration monitoring system is assessed by the completion of ongoing quality assurance (QA) procedures. The QA procedures for the O_2 concentration monitoring system are summarized in Table 4-6.

Table 4-6
O_2 Ongoing Quality Assurance Frequency
Verso Escanaba LLC - Escanaba, MI Mill

Analyzer	Daily	Weekly	Monthly	Quarterly	Semi-annually	Annual
O_2	CDT [a] Section 4.5.1.1			CGA [b] Section 4.5.2.1		RATA [c][d] Section 4.5.3.1

[a] Calibration Drift Test (CDT)
[b] Cylinder Gas Audit (CGA)
[c] Relative Accuracy Test Audit (RATA)
[d] RATAs are not required on the Lime Kiln or the Recovery Furnace

4.5.1 Daily

The following QA activities are completed at least once daily (i.e., every 24 hours) on the O_2 concentration monitoring system. The daily QA activities performed on the O_2 concentration monitoring system include a calibration drift test (CDT).

4.5.1.1 Calibration Drift Test (CDT)

A calibration drift test (CDT) is completed by the Mill pursuant to 40 CFR §60.13(d)(1) at least once every 24 hours in accordance with the procedures described herein. A CDT is automatically initiated every 24 hours by the Programmable Logic Controller (PLC). The PLC energizes normally closed solenoid valves to allow the reference gas to be introduced to the sample probe. The reference gas is transported from the gas cylinder up to the sample probe and then travels down to the analyzer rack through the stack sample lines. This includes all of the sample line filters, dilution systems (as applicable), scrubbers, conditioners, and other sampling system components. The solenoid valve is energized introducing the reference gas for a pre-determined time interval adequate for the monitoring system to measure and record a stable response. A zero and span gas check are run at least every 24-hours. Additional CDT, if required, may be initiated by the Mill manually throughout the 24 hour period.

4.5.1.1.1 Span Value

Span is defined in 40 CFR 60 Appendix B Performance Specification 2 §3.11 as the concentration specified for the affected source category in an applicable subpart of the regulations that is used to set the calibration gas concentration and in determining calibration drift. The applicable subparts for the O_2 concentration monitoring system are listed in Table 4-3. The span values for the O_2 concentration monitoring systems are summarized in Table 4-7.

Table 4-7
O_2 Span Summary
Verso Escanaba LLC - Escanaba, MI Mill

Analyzer	Span [(a)]	Reference
O_2	25 %	40 CFR §60.284 (a)(2)(ii) - RF10 & LK [Not defined for B8 & B11] [(b)]

[(a)] Span is defined in 40 CFR 60 Appendix F §2.3 as the upper limit of a gas concentration measurement range that is specified for affected source categories in the applicable subpart of the regulation. Span is defined in 40 CFR 60 Appendix B Performance Specification 2 §3.11 as the concentration specified for the affected source category in an applicable subpart of the regulations that is used to set the calibration gas concentration and in determining calibration drift.

[(b)] The span for the O_2 concentration monitoring system installed on B8 and B11 is not defined in the applicable subpart listed in Section 4.3. VE has elected to use a span of 25% for the O_2 concentration monitoring system installed on B8 and B11.

4.5.1.1.2 CDT Reference Gas Concentrations

Two (2) reference gas concentrations are utilized for the CDT. The two (2) reference gas concentrations are determined based on the applicable span value as defined in Section 4.5.1.1.1. The reference gas concentrations are zero or low (e.g., between 0 and 20% of span value) and upscale (e.g., 50 to 100% of span value). The low and upscale audit gases are U.S. EPA Protocol grade calibration gases. The reference gas concentrations that are used in the CDT are summarized in Table 4-8.

Table 4-8
O_2 CDT Reference Gas Summary
Verso Escanaba LLC - Escanaba, MI Mill

Analyzer	Zero or Low [(a),(c)]	Upscale [(b),(c)]
O_2	0 – 5.0 %	12.5 – 25.0 %

(a) Zero or low level reference gas is defined in 40 CFR §60.13(d)(1) as between 0 and 20% of the span value.
(b) Upscale level reference gas is defined in 40 CFR §60.13(d)(1) as between 50 and 100% of the span value.
(c) 40 CFR §60.13(d)(1) is included by reference in applicable subpart listed in Section 4.3.

4.5.1.1.3 CDT Calculation

The calibration drift for the O_2 analyzers are computed by the DAHS for each reference gas level as described in Equation 4-1.

Equation 4-1 $CD = |R - A|$

Where:

CD = Calibration Drift as a percentage of the SPAN.
R = Reference value of zero or upscale concentration introduced into the monitoring system.
A = Actual monitoring system response to the reference value (R).

4.5.1.1.4 CDT Pass/Fail Tolerance

Pursuant to 40 CFR §60.13(d)(1), the O_2 monitors are adjusted whenever the zero CDT or the upscale CDT exceeds two (2) times the limit of the applicable performance specification listed in Section 4.4 and summarized listed in Table 4-9. If the zero CDT or the upscale CDT exceeds twice (i.e., 2x) the applicable performance specification listed in listed in Table 4-9 for five (5), consecutive, daily periods, the CEMS is out-of-control (OOC). If either the zero (or low-level) or upscale-level CD result exceeds four times (i.e., 4x) the applicable drift specification in applicable performance specification listed in Section 4.4, the CEMS is OOC.

If the calibration drift exceeds the specification limits listed in Table 4-9 for the appropriate monitor, the failure is indicated on the calibration report generated by the DAHS.

Table 4-9
O_2 CDT Pass/Fail Tolerance
Verso Escanaba LLC - Escanaba, MI Mill

Emission Unit	Analyzer	Adjustment Limit [a] (Data Valid)	Out-of-Control Limit [a] (Data Invalid)
RF10 **LK** **B8** **B11**	O_2	± 1.0 % O_2	± 1.0 % O_2 for five (5) consecutive days OR ± 2.0% O_2 at any time

[a] Adjustments must be made to the monitoring system if the zero or upscale drift exceeds the drift tolerance by more than the listed value. Data is considered invalid and the CEMS is out-of-control (OOC) if the zero CDT or the upscale CDT exceeds twice (i.e., 2x) the applicable performance specification listed in listed in Table 4-10 for five (5), consecutive, daily periods. If either the zero (or low-level) or upscale-level CD result exceeds four times (i.e., 4x) the applicable drift specification in applicable performance specification listed in Section 4.4, the CEMS is also OOC.

4.5.1.1.5 CDT Failure Procedures

If the CDT exceeds the specification limits listed in Table 4-9 the following procedures are recommended, but not limited to:

(1) Initiation of corrective maintenance procedures to repair the monitoring system.
(2) Completion of a successful CDT.

4.5.1.1.6 CDT Data Validation

Data is considered invalid and out-of-control (OOC) beginning the time corresponding to the completion of the fifth (5), consecutive, daily CDT where the zero or the upscale CDT exceeds twice (i.e., 2x) the applicable performance specification as summarized in Table 4-9 for five (5), consecutive, daily periods, or the time corresponding to the completion of the last successful CDT ***preceding*** the daily CDT check that results in a CDT in excess of four times (i.e., 4x) the allowable limit.

The end of the OOC period is the time corresponding to the completion of the CDT following corrective action (if necessary) that results in successful CDT at both the zero (or low-level) and high-level measurement points.

4.5.2 Quarterly

The following QA activities are completed at least once in each of the four (4) calendar quarters on the O_2 concentration monitoring system unless otherwise noted in section 4.5.2.1. The quarterly QA activities performed on the O_2 concentration monitoring system include a cylinder gas audit (CGA).

4.5.2.1 Cylinder Gas Audit (CGA)

A cylinder gas audit (CGA) is completed on the O_2 concentration monitoring systems. The CGA is conducted at least once every calendar quarter on the Lime Kiln and the Recovery Furnace. A cylinder gas audit (CGA) is completed on the O_2 concentration monitoring system in three (3) of four (4) calendar quarters, but in no more than three (3) quarters in succession on No. 8 and No. 11 Boilers. A CGA is not required during the quarter in which the relative accuracy test audit (RATA) is completed. Successive quarterly audits shall occur no closer than 2 months.

Documentation of the certification is located in Section 8.9.2 and 8.9.6 of the Environmental Files. The CGA is conducted consistent with the procedures in 40 CFR 60 Appendix F §5.1.2.

A CGA is conducted while the monitoring systems are not operating out-of-control (OOC) with respect to any required quality assurance assessments. A CGA may be done “cold” with no corrective maintenance, repair, calibration adjustments, re-linearization, or reprogramming of the monitor prior to the test. The CGA may be done after repair, corrective maintenance or reprogramming of the monitor. Once a CGA has started, no adjustments to the monitoring system will be made.

The steps for conducting a CGA are as follows:

(1) The O_2 concentration monitoring system is challenged with audit gases of known concentrations at two (2) points within the concentration ranges shown in Table 4-10. Audit gases are injected at the same point that the calibration gases are administered. This includes as much of the sampling system as possible (sample lines, filters, scrubbers, components exposed to the sample gas, and as much of the probe as practicable).

(2) The O_2 concentration monitoring system is challenged three (3) times at each audit point. The sample line is purged in between each run at each audit point. The average of the three (3) responses for each audit point is used in determining accuracy. The monitor is challenged at each audit point for a sufficient period of time to assure that any sample gas in the lines is flushed out and the calibration gas flow has stabilized. The injection time also takes into account the response time of the analyzers and the sample system. The difference between the actual concentration of the audit gas and the concentration indicated by the monitor determines the accuracy of the monitor.

4.5.2.1.1 CGA Reference Gas Concentrations

Two (2) reference gas concentrations are utilized for the CGA. The two (2) reference gas concentrations are determined based on the applicable span value as defined in Section 4.5.1.1.1 or the reference gas concentrations defined in 40 CFR 60 Appendix F § 5.1.2. The reference gas concentrations for O_2 are presented in Table 4-10. The audit gases are U.S. EPA Protocol grade calibration gases and are different then the audit gases used in the CDT.

Table 4-10
O_2 CGA Reference Gas Summary
Verso Escanaba LLC - Escanaba, MI Mill

Analyzer	Audit Point 1 [a]	Audit Point 2 [b]
O_2	4.0 – 6.0 %	8.0 – 12.0 %

[a] The audit point 1 reference gas is defined in 40 CFR 60 Appendix F § 5.1.2 as between 20 and 30% of the span value for TRS and between 4.0 and 6.0% O_2.
[b] Upscale level reference gas is defined in 40 CFR 60 Appendix F § 5.1.2 as between 50 and 60% of the span value for TRS and between 8.0 and 12.0% O_2.

4.5.2.1.2 CGA Accuracy Calculation

The CGA accuracy for the O_2 concentration monitoring system is calculated for each reference gas level as described in Equation 4-2.

Equation 4-2 $$A = \frac{(C_M - C_A)}{C_A} x\ 100$$

Where:

A = Percent accuracy of the CEMS.

CM = Average CEMS response during audit in units of applicable standard or appropriate concentration.

CA = Average audit value in units of applicable standard or appropriate concentration.

4.5.2.1.3 CGA Pass/Fail Tolerance

The O_2 concentration monitoring system is out-of-control (OOC) and the measured data is invalid when the CGA exceeds the tolerances in Table 4-11 at any audit point. The CEMS is deemed OOC the hour in which the CGA was completed or aborted in anticipation of a CGA failure. The measured data from O_2 concentration monitoring system is considered valid the hour that a successful CGA is completed.

Table 4-11
O_2 CGA Accuracy Pass/Fail Tolerance
Verso Escanaba LLC - Escanaba, MI Mill

Analyzer	Out-of-Control Limit [a] (Data Invalid)
O_2	± 15.0% of Average Audit Value [b]

[a] Data is considered invalid or out-of-control (OOC) and adjustments must be made to the monitoring system if the CGA accuracy tolerance is more than the listed tolerance.
[b] As determined by Equation 4-2 in Section 4.5.2.1.2.

4.5.2.1.4 CGA Failure Procedures

If the calibration drift exceeds the specification limits listed in Table 4-11 the following procedures are recommended, but not limited to:

(1) Initiation of corrective maintenance procedures to repair the monitoring system.
(2) Completion of a successful CDT as described in Section 4.5.1.1.
(3) Completion of a successful CGA.

4.5.2.1.5 CGA Data Validation

The O_2 concentration monitoring system is out-of-control (OOC) and the measured data is invalid when the CGA exceeds the tolerances in Table 4-11 at any audit point. The CEMS is deemed OOC the hour in which the CGA was completed or aborted in anticipation of a CGA failure. The measured data from O_2 concentration monitoring system is considered valid the hour that a successful CGA is completed.

4.5.3 Annually

The following QA activities are completed at least once annually (i.e., every four (4) calendar quarters) on the NO_X CERMS (i.e., lbs NO_X/MMBtu). The NO_X CERMS is dependent on the O_2 concentration monitoring system to determine lbs NO_X/MMBtu. The annual QA activities performed on the NO_X CERMS includes a relative accuracy test audit (RATA). As mentioned in Section 3, annual RATAs are not required on the Lime Kiln and Recovery Furnace TRS/O_2 CEMS.

4.5.3.1 Relative Accuracy Test Audit (RATA)

The NO_X CERMS (i.e., lbs NO_X/MMBtu) RATAs is described in Section 2.5.3.1.

5 CONTINUOUS OPACITY MONITORING SYSTEM (COMS)

A continuous opacity monitoring system (COMS) consists of opacity monitor and a data acquisition and handling system (DAHS). These components are necessary to determine the percent opacity in an exhaust stack.

5.1 *AFFECTED SOURCES*

COMS are installed, operated, and maintained on the sources listed in Table 5-1.

Table 5-1
COMS Summary
Verso Escanaba LLC - Escanaba, MI Mill

Emission Unit ID	Emission Unit Description
EURF15	RF10 – No. 10 Chemical Recovery Furnace
EU11B68	B11 – No. 11 Boiler

5.2 *EMISSION LIMITATIONS*

COMS are operated to demonstrate compliance with the emission limitations summarized in Table 5-2.

Table 5-2
COMS Emission Limitation Summary
Verso Escanaba LLC - Escanaba, MI Mill

Emission Unit	Emission Limitation	Units	Averaging Period	Comments
RF10	20	%	6-min block average	>20 percent opacity except for one six-minute period per hour of not more than 27 percent opacity (R336.1301(1)(a)
	20	%	10-consecutive, 6-min block averages	Corrective action trigger only. (40 CFR 60 subpart MM)
	35	%	6-min block average	Violation under 40 CFR 63 Subpart MM only if > 35% opacity for > 2% of the semi-annual operating time. Excess emissions under 40 CFR 60 Subpart BB are defined as > 35% opacity.
B11	20	%	6-min block average	>20 percent opacity except for one six-minute period per hour of not more than 27 percent opacity R336.1301(1)(a)
	10	%	Daily block average	40 CFR 63 Subpart DDDDD(a)

(a)Emission limits pursuant to 40 CFR 63 Subpart DDDDD are effective as of January 31, 2016.

5.3 *MONITORING REQUIREMENTS*

COMS are required pursuant to the applicable monitoring regulations summarized in Table 5-3.

Table 5-3
Applicable Monitoring Requirements
Verso Escanaba LLC - Escanaba, MI Mill

Emission Unit	Applicable Monitoring Regulation	Quality Assurance Activity Basis
RF10	40 CFR 60 Subpart BB 40 CFR 63 Subpart MM R 336.1301(1)(a)	40 CFR 60, Appendix F, P3 40 CFR §60.13(d)(1) 40 CFR §63.8(c)(6)
B11	40 CFR 60 Subpart D R 336.1301(1)(a) 40 CFR 63 Subpart DDDDD[a]	40 CFR 60, Appendix F, P3 40 CFR §60.13(d)(1) 40 CFR §63.8(c)(6) 40 CFR §63.7525(c)[a]

[a]Monitoring requirements pursuant to 40 CFR 63 Subpart DDDDD are effective as of January 31, 2016.

5.3.1 Monitoring System Description

5.3.1.1 Opacity Analyzer

The opacity of particulate matter in stack emissions is continuously monitored by a measurement system based upon the principle of transmissometry. Light having specific spectral characteristics is projected from a lamp through the effluent in the stack or duct, and the intensity of the projected light is measured by a sensor. The projected light is attenuated because of absorption and scattered by the particulate matter in the effluent; the percentage of visible light attenuated is defined as the opacity of the emission. Transparent stack emissions that do not attenuate light will have a transmittance of 100% or an opacity of 0%. Opaque stack emissions that attenuate all of the visible light will have a transmittance 0% or an opacity of 100%.

5.3.1.2 Data Acquisition and Handling Systems

The data acquisition and handling system (DAHS) includes the COMS hardware and software components that take the output from the analyzers, combine it with other information, store the necessary data, and compute emissions.

Table 5-4
Opacity CEMS Major Component Summary
Verso Escanaba LLC - Escanaba, MI Mill

Analyzer	Analyzer Information			Measurement Parameters					Comment
	Manufacturer	Model No.	Serial No.	Span	Range	Units	Dilution Ratio	Basis	
No. 10 Recovery Furnace									
Opacity	SICK-Maihak	Dusthunter T200	17498236	70	0 – 100	%			Span defined in §60.284(a)(1).
DAHS	VIM								
No. 11 Boiler									
Opacity	SICK-Maihak	Dusthunter T200	17498235	80, 90, or 100	0 – 100	%			Span defined in §60.45(c)(3).
DAHS	VIM								

5.4 Installation and Initial Certification

The installation and initial certification of the COMS were completed in accordance with applicable Performance Specification (PS) in 40 CFR 60 Appendix B. The applicable PS are summarized in Table 5-5. Documentation of the COMS certification is located in the section 8.9.4 of the environmental files.

Table 5-5
Applicable Performance Specifications
Verso Escanaba LLC - Escanaba, MI Mill

Emission Unit	Analyzer	Applicable Performance Specification (PS)	Reference
RF10	Opacity	PS-1	40 CFR 60 Appendix B
B11	Opacity	PS-1	40 CFR 60 Appendix B

5.5 Ongoing Quality Assurance Activities

The quality of the data collected by the COMS is assessed by the completion of ongoing quality assurance (QA) procedures. Procedure 3, of 40 CFR 60 Appendix F, establishes QA procedures for COMS used to demonstrate continuous compliance with opacity standards specified in new source performance standards (NSPS) promulgated by EPA pursuant to section 111(b) of the Clean Air Act. The effective date of Procedure 3 is November 12th, 2014. Ongoing quality assurance requirements for COMS are also defined in the applicable standards requiring opacity monitoring. The QA procedures for the COMS are summarized in Table 5-6.

Table 5-6
Ongoing Quality Assurance Frequency
Verso Escanaba LLC - Escanaba, MI Mill

Analyzer	Daily	Weekly	Monthly	Quarterly	Semi-annually	Annual
Opacity	CDT [(a)] Section 2.5.1.1 Status Indicator Check			Performance Audit[(b)]		Zero Alignment

[(a)] Calibration Drift Test (CDT)
[(b)] Performance audit consists of a calibration error test (CET), zero compensation check, and optical alignment check.

5.5.1 Daily

The following QA activities are completed at least once daily (i.e., every 24 hours) on the COMS. The daily QA activities performed on the COMS include a calibration drift test (CDT) and a status indicator check

5.5.1.1 Calibration Drift Test (CDT)

The COMS is designed to complete a zero and an upscale calibration drift test (CDT) in order to ensure that the transmitter/receiver is working correctly. A CDT is completed by the Mill pursuant to 40 CFR §60.13(d)(1), 60 Appendix F, P3 §10.1 and 40 CFR §63.8(c)(6) at least once every 24 hours in accordance with the procedures described herein. The CDT consists of an automatic simulated zero and upscale calibration device that allows the zero and upscale drifts to be determined. A CDT is automatically initiated every 24 hours by the COMS. Additional CDT, if required, may be initiated by the Mill manually throughout the 24 hour period.

All optical and instrumental surfaces exposed to the effluent gases must be cleaned prior to performing the zero (low-level) and high-level drift adjustments; the optical surfaces and instrumental surfaces must be cleaned when the cumulative automatic zero compensation, if applicable, exceeds 4 percent opacity.

5.5.1.1.1 Span Value

Span is defined in an applicable subpart of the regulations as summarized in Table 5-4. The span values for the COMS are summarized in Table 5-7.

Table 5-7
COMS Span Summary
Verso Escanaba LLC - Escanaba, MI Mill

Emission Unit	Analyzer	Span	Reference)
RF10	Opacity	70%	40 CFR §60.284(a)(1)
B11	Opacity	80, 90, or 100%	40 CFR §60.45(c)(3)

5.5.1.1.2 CDT Reference Values

Pursuant to 40 CFR §60.13(d)(1), the acceptable range of zero and upscale calibration materials for use in the CDT is defined in the applicable version of 40 CFR 60 Appendix B, Performance Specification 1 (PS-1) as described in Section 5.4. The zero and upscale calibration materials that are used in the CDT are summarized in Table 5-8.

Table 5-8
CDT Reference Gas Summary
Verso Escanaba LLC - Escanaba, MI Mill

Analyzer	Zero	Upscale [(a)]
Opacity	0 %	10 – 60 %

[(a)] The upscale calibration level is defined in ASTM 6216-98 as: “between the energy levels corresponding to 10 % opacity and the highest level filter used to determine calibration error.” Applies to the RF10 COMS only.

5.5.1.1.3 CDT Calculation

The calibration drift for the COMS are computed by the DAHS for each reference level as described in Equation 5-1.

Equation 5-1 $$CD = |R - A|$$

Where:

CD = Calibration Drift.
R = Reference value of zero or upscale level introduced into the monitoring system.
A = Actual monitoring system response to the reference value (R).

5.5.1.1.4 CDT Pass/Fail Tolerance

Pursuant to 40 CFR §60.13(d)(1) and 40 CFR §63.8(c)(iii)(6) and 40 CFR 60 Appendix F, P3, the opacity monitors are adjusted whenever the zero CDT or the upscale CDT exceeds two (2) times the limit noted in the applicable performance specification listed in Section 5.4. Performance Specification 1 states that the COMS zero and upscale calibration drift error must not exceed 2% opacity over a 24 hour period. Pursuant to 40 CFR 60 Appendix F, P3 §10.4(1), if the zero or upscale drift check exceed twice the applicable drift specification in PS-1 for any one day, the COMS is out-of-control (OOC). A CDT is “failed” if the results do not meet the acceptable criteria listed in Table 5-9 for the appropriate monitor. The failure is indicated on the calibration report generated by the DAHS.

Table 5-9
CDT Pass/Fail Tolerance
Verso Escanaba LLC - Escanaba, MI Mill

Analyzer	Adjustment Limit [a] (Data Valid)
Opacity	> 4.0 % Opacity
Opacity	Contamination > 4.0 % Opacity

[a] Data is considered invalid and out-of-control and adjustments must be made to the monitoring system if the zero or upscale drift exceeds the drift tolerance by more than the listed value and/or the contamination is greater than 4%.

5.5.1.1.5 CDT Failure Procedures

If the calibration drift or contamination exceeds the specification limits listed in Table 5-9 the following procedures are recommended, but not limited to:

(1) Initiation of corrective maintenance procedures to repair the COMS.
(2) Initiation of corrective maintenance procedures to reduce contamination.
(2) Completion of a successful CDT.

5.5.1.1.6 CDT Data Validation

COMS are required to be adjusted whenever the zero CDT or the upscale CDT exceeds two (2) times the limit noted in the applicable performance specification as summarized in table 7-9. The data collected after a failed CDT and prior to adjustments that result in a passing CDT is considered invalid data. Data is also considered invalid if the zero compensation (contamination) exceeds 4%.

5.5.1.2 Status Indicator Check

The COMS is designed to complete a status indicator check automatically at least once every 24 hours. A status indicator check is completed by the Mill pursuant to 40 CFR

Appendix F Procedure 3 §10.1(3). The status indicator check is a check of system self-diagnostics and status indicators. Error messages are communicated automatically from the monitor to the DAS via instrument output relays. In the event of a diagnostic parameter failure, the monitor will generate an alarm status. Appropriate corrective actions are implemented as required according to manufacturer's instructions. The Mill may opt to invalidate data based on the nature of the status alarm and required adjustments.

5.5.2 Quarterly

As required by 40 CFR 60 Appendix F Procedure 3, the Mill performs quarterly COMS performance audits. Audit results are submitted to the Michigan Department of Environmental Quality each quarter with the Quarterly CEMS Report. The quarterly COMS audits include a zero compensation check, optical alignment assessment, a calibration error check, a system response time check, and an averaging period calculation and recording check. Table 7-10 summarizes the pass/fail criteria for quarterly performance parameters.

Table 5-10
Performance Test Pass/Fail Tolerance
Verso Escanaba LLC - Escanaba, MI Mill

Parameter	Adjustment Limit [a] (Data Valid)
Zero Compensation	> 4% Opacity
Audit Zero	> 1% Opacity
Audit Calibration Error	> 3% Opacity
Optical Alignment	Light beam outside of acceptable alignment area

[a] Adjustments must be made to the monitoring system if audit parameters exceed the tolerance limits by more than the listed values. The COMS is considered out-of-control and data is invalid until parameters are within acceptable ranges.

5.5.2.1 Zero Compensation Check

Zero compensation is checked quarterly as required by 40 CFR 60 Appendix F P3 §10.2(1). The value of the zero compensation (contamination correction) applied at the time of the audit must not exceed 4% opacity. **If zero compensation is greater than 4%, data is considered out-of-control and invalid until corrective actions are implemented which reduce the zero compensation to less than 4%.**

5.5.2.2 Optical Alignment Assessment

Optical alignment is checked quarterly as required by 40 CFR 60 Appendix F P3 §10.2(3) in accordance with the manufacturer's recommendations. The optical alignment indicator must show proper alignment (i.e., falls within a specified reference area) at the time of the audit. **If a condition of improper alignment is indicated, data is considered out-of-control and invalid until corrective actions are implemented which bring the alignment back into the acceptable range.**

5.5.2.3 Calibration Error Check

A three-point calibration error test of the COMS must be performed once each quarter as required by 40 CFR 60 Appendix F P3 §10.2(2). Three calibration attenuators (neutral density filters) meeting the requirements of PS-1 must be placed in the COMS light beam path for at least three nonconsecutive readings. All monitor responses must then be independently recorded from the COMS permanent data recorder. (Guidance for conducting this test is included in section 8.1(3)(ii) of PS-1). The low-, mid-, and high-range calibration error results must be computed as the mean difference and 95 percent confidence interval for the difference between the expected and actual responses of the monitor as corrected to stack exit conditions. The equations necessary to perform the calculations are found in section 12.0 of PS-

1. For the calibration error method, the external audit device is used. It must be confirmed that the external audit device produces a measurement less than or equal to one percent opacity. Attenuators must be recalibrated annually. If two annual calibrations agree within 0.5% opacity, the attenuators may then be recalibrated once every five (5) years.

Attenuators and external audit devices are stored in a manner which keeps them clean and protects them from damage. Only appropriate lens cleaning materials recommended by the manufacturer are used to clean attenuators. External audit devices are handled carefully to prevent jarring or damage which could affect the alignment. Filters are handled to prevent scratches and other damage. Any damaged equipment is sent to the manufacturer for repair and recalibration, or replaced.

The COMS is considered OOC and the measured data is invalid when COMS parameters exceed the tolerances in table 7-10.

5.5.2.4 System Response Time Check

Although not specifically required by the applicable standards, the Mill elects to check the COMS system response time quarterly according to the procedures specified in 40 CFR 60 Appendix B PS-1. A response time of <10 seconds is considered acceptable for upscale and downscale responses.

5.5.2.5 Averaging Period Calculation and Recording Check

Although not specifically required by the applicable standards, the Mill elects to check the COMS system averaging period calculation and data recording quarterly according to the procedures specified in 40 CFR 60 Appendix B PS-1. A calculated averaging period attenuator response within 2% of the certified attenuator value is considered acceptable.

5.5.3 Annually

As required by 40 CFR 60 Appendix F Procedure 3, the Mill performs an annual COMS zero alignment. The zero alignment is performed according to the manufacturer's recommendations and the requirements of Procedure 3. The COMS is removed from the stack and set up using the appropriate apparatus to allow clear path conditions. The COMS response to a clear condition and the COMS simulated zero response are recorded as percent opacity corrected to stack exit conditions. Zero compensation is disabled or recorded and applied to the COMS simulated zero condition. **The response difference in percent opacity to the clear path and simulated zero conditions is recorded as the zero alignment error.** The COMS is considered out-of-control if the zero alignment error does not meet the acceptable criteria listed in Table 7-11. The COMS simulated zero is then adjusted to provide the same response as the clear path condition, where the energy reaching the detector is between 90 and 110% of the energy reaching the detector under actual clear path conditions.

Table 5-11
Zero Alignment Pass/Fail Tolerance
Verso Escanaba LLC - Escanaba, MI Mill

Analyzer	Adjustment Limit [(a)] (Data Valid)
Opacity	> 2% Opacity

[(a)] Adjustments must be made to the monitoring system if the zero alignment exceeds the tolerance limit by more than the listed value. The COMS is considered out-of-control and data is invalid until corrective adjustments can be made to bring the analyzer zero alignment within tolerance limits.

6 PREVENTATIVE MAINTENANCE

The primary objective of a comprehensive preventative maintenance program is to help ensure the timely and effective completion of a measurement effort. VE's preventative maintenance program is designed to minimize the downtime of CEMS and COMS equipment due to component failures.

All maintenance performed on a CEMS and COMS is recorded in the maintenance log. The maintenance logs will be used to track the maintenance history of the equipment. The instrument electrician or mechanic shall complete a calibration/inspection form and note what (if any) *problems* were identified.

The maintenance frequency will be based on the manufacturer's recommendations, equipment history, or the industry standard. Adjustments in the frequency will be made as necessary. Mechanical problems identified during basic care routes will be identified in the work order system and repaired at the next available opportunity or during the next shutdown depending on the severity of the problem and the potential environmental impact.

6.1 *SPARE PARTS*

The maintenance activities described in this section and an adequate inventory of spare parts are required to minimize equipment downtime. The spare parts inventory targets those parts and supplies which:

- are subject to frequent failure;
- have limited useful lifetimes; or
- cannot be obtained in a timely manner should failure occur.

7 REVISIONS

Revisions to the Continuous Monitoring System Quality Assurance Plan are documented in Table 9-1.

Table 9-1
Continuous Monitoring System Quality Assurance Plan Revisions Log
Verso Escanaba LLC - Escanaba, MI Mill

Date	Authorized by	**Revision Description** ***Document Section Number*** ***Regulatory Citation*** ***Brief Revision Description and Justification***
10/17/2014	Paula LaFleur	In Sections 2.2 and 2.3, updated table 2-3 and 2-4 to include the No. 8 Boiler emission limits and monitoring requirements resulting from the implementation of 40 CFR 52.1183(i) (BART FIP); Updated Table 2-5 with the currently certified NOx analyzer model and serial number for the No. 11 Boiler; Updated Table 3-3 by removing the LK regulation reference to 40 CFR 60 Subpart BB and adding R 336.1201; Updated tables 5-4 and 6-4 by changing the VFR model and serial numbers to those of the master control units instead of the probes; Updated Tables 7-2 and 7-3 to include the No. 11 Boiler emission limits and monitoring requirements resulting from the implementation of 40 CFR 63 Subpart DDDDD; Updated Section 7.4 and Table 7-5 to remove the references to the "old PS1" which no longer apply; Updated section 7.5 to include the new requirements of 40 CFR 60 Appendix F, Procedure 3

		for COMS; Other minor corrections and clarifications; Added this revisions table (Table 9-1)
7/26/16	Paula LaFleur	Reformatted document with Verso header
3/26/20	Adam Becker	Updated Serial numbers and deleted obsolete monitoring devices no longer applicable in the Mill.

Reciprocating Internal Combustion Engine (RICE) MACT Summary

Reciprocating Internal Combustion Engine (RICE) MACT Summary for Escanaba

This document summarizes the requirements for the Escanaba Mill in regards to RICE MACT rules (40 CFR Subpart ZZZZ) as of **April 1, 2013**. All RICE units at the Escanaba Mill are **existing stationary emergency** spark ignition (SI) or compression ignition (CI) RICE units (the mill is classified as a major source). As such, only the rules for existing stationary Emergency RICE units are summarized in this document. The full rules for other RICE unit types are summarized in previous work that can be found in the RICE MACT folder. Unless otherwise noted, all rules pertain to both CI and SI Emergency RICE. Note: The rule states that any emergency engine, regardless of rated brake HP, falls under the same requirements for emergency SI or CI RICE units.

Table 1 below summarizes all six (Emergency) RICE units located at the Escanaba Mill.

Table 1: Summary of Emergency RICE Units at Escanaba

Unit	Location	Date of Installation	Fuel	Number of Cylinders	Rich or Lean Burn	Compression or Spark Ignition	Rated Brake Horsepower
Lime Kiln Emergency Drive Motor	Lime Kiln	May 1989	Propane	4	Lean	Spark	**25**
E1 Emergency Lift Pump	E1 Complex	July 1996	Diesel	4	Lean	Compression	**100**
Emergency Fire Water Pump	Water Treatment Bldg	1967	Diesel	6	Lean	Compression	**160**
Emergency Fire Water Pump	By Administrative Building	1992	Diesel	8	Lean	Compression	**200**
EOC Back-up Generator	By Administrative Building	2001	Propane	6	Lean	Spark	**200**
Turbine Turning Gear Back-up Generator	No. 8 Generator Basement	1972	Diesel	4	Lean	Compression	**40**

Compliance Deadlines for RICE Units

1) Must be in compliance with emergency **CI RICE** units by **May 3, 2013**
2) Must be in compliance with emergency **SI RICE** units by **October 19, 2013**

Summary for Verso Escanaba LLC as of August 18, 2011

- **No performance testing of emergency units is required**
- **No initial notification is required for emergency units**
- **Must have non-resettable hour meters on all RICE units**
- **Must keep records of hours of operation of each unit (who, when, where, why, how long, etc.)**

- **Must keep records of when things were inspected, repaired, replaced, etc. The date and the reading on the hour meter must be recorded to calculate hours of operation from last inspection, repair, replacement, etc. (keep track of everything that goes on with each RICE unit along with the corresponding dates and hour meter readings)**
- **There are operating-time limits (on a yearly basis)**
    - 100 hours for maintenance checks, readiness testing
    - 50 hours for non-emergency purposes (cannot generate any income)
    - The 50 count toward the 100
    - No time limit for operating during emergencies
- **For all Emergency CI RICE units**
    - Change oil and filter every 500 hours, or annually, whichever is first
    - Inspect air cleaner every 1000 hours, or annually, whichever is first
    - Inspect all hoses and belts every 500 hours, or annually, whichever is first, and replace as necessary
- **For all Emergency SI RICE units**
    - Change oil and filter every 500 hours, or annually, whichever is first
    - Inspect spark plugs every 1000 hours, or annually, whichever is first
    - Inspect all hoses and belts every 500 hours, or annually, whichever is first, and replace as necessary
- **Minimize idling time and limit start-up time to 30 minutes or less**
- **Demonstrate continuous compliance by**
    - Operating and maintaining the stationary RICE unit according to the manufacturer's emission-related operation and maintenance instructions; or
    - Develop and follow your own maintenance plan which must provide to the extent practicable for the maintenance and operation of the engine in a manner consistent with good air pollution control practice for minimizing emissions

Selected Excerpts from Rule

To elaborate further on some portions of the RICE MACT rule, selected excerpts from the rule are provided below.

Maintaining RICE and After Treatment Device

Owners and operators of existing stationary emergency RICE units located at major sources must operate and maintain their stationary RICE unit and after-treatment control device (if any) according to the manufacturer's emission-related written instructions or develop their own maintenance plan.

Performance Testing and Emission Standards

Owners and operators of existing stationary emergency RICE units located at major sources do not have to conduct any performance testing because they are not subject to numerical emission standards.

Records of Hours of Operation

Owners and operators of existing stationary emergency RICE units are required to keep records of their hours of operation.

Installing Non-Resettable Hour Meter

Owners and operators of existing stationary emergency RICE unit(s) must install a non-resettable hour meter on their engines to record the hours of operation of the engine.

Maintenance Checks and Readiness Testing

Emergency stationary RICE units may be operated for the purpose of maintenance checks and readiness testing, provided that the tests are recommended by the Federal, State or local government, the manufacturer, the vendor, or the insurance company associated with the engine. Maintenance checks and readiness testing of such units are limited to 100 hours per year.

Operating Time Limits and Exceptions

There is no time limit on the use of emergency stationary engines in emergency situations; however, the owner or operator is required to record the length of operation and the reason the engine was in operation during that time. Records must be maintained documenting why the engine was operating to ensure the 100 hours per year limit for maintenance, testing and demand response operation is not exceeded. In addition, owners and operators are allowed to operate their stationary emergency RICE for non-emergency purposes for 50 hours per year, but those 50 hours are counted towards the total 100 hours provided for operation other than for true emergencies. The 50 hours per year for non-emergency purposes cannot be used to generate income for a facility, for example, to supply power to an electric grid or otherwise supply power as part of a financial arrangement with another entity.

The final rule specifies that in situations where an emergency engine is operating during an emergency and it is not possible to shut down the engine in order to perform the work or management practice requirements on the schedule required in the final rule, or if performing the work or management practice on the required schedule would otherwise pose an unacceptable risk under Federal, State, or local law, the maintenance activity can be delayed until the emergency is over or the unacceptable risk under Federal, State, or local law has abated. The maintenance should be performed as soon as practicable after the emergency has ended or the unacceptable risk under Federal, State, or local law has abated. Sources must report any failure to perform the work practice on the schedule required and the Federal, State or local law under which the risk was deemed unacceptable.

Plan Revision Record

Revision Date	Description of Change	Reviewer
6-2013	Original Document	W. Racine
7/21/16	Stricken text - Per 5/1/15 vacature, provisions allowing operation for periods demand response and when there is a voltage or frequency deviation of 5% or greater blow standard were removed for emergency units unless emissions testing is performed and other applicable requirements are met. Revisions have not yet been published in the FR. - Will need to revise on publication.	P. LaFleur

Fugitive Dust Control Program

The Michigan Department of Environment, Great Lakes, and Energy (EGLE) regulates the fugitive emissions of particulate matter from sources such as material handling and roadways. Condition IX.1 under Source-Wide Conditions of the Title V Permit MI-ROP-A0884-2016 states "the permittee shall carry out a Fugitive Dust Control Program to control fugitive dust emissions from the plant roadways, material storage piles, and other operations throughout the plant, including keeping of records of fugitive dust control activities and dates carried out". The following will be a policy for the operating areas that have operational control over systems that can potentially emit fugitive emissions.

The Fugitive Dust Control Program meets the requirements identified in R 336.1372. The following sections identify each area that has a potential to emit or cause a fugitive emission and what operational procedures or controls are being performed for each. In addition to the stated operational procedures, personnel will also notify their Supervisor or the Environmental Department if a visual observance of a fugitive emission or spill occurs.

1.1 Loading or unloading operations at open storage piles of bulk or raw materials is a potential source of fugitive dust. Materials stored in piles on the mill site include coal, wood waste, wood chips, and sludge.

Control methods for controlling fugitive emissions from loading or unloading activities at piles include:

- Wood chips and some wood waste are conveyed pneumatically. In addition, water is added to the chip chutes of the softwood and hardwood handling equipment during the months when there is no freezing (approximately April through October).
- Chip pile modos are placed close to the chip pile to minimize the distance between the discharge point and the pile.
- The drop distance and proximity to the storage pile are minimized for unloading coal and sludge, which are delivered by truck. The materials are unloaded on a flat pad, near the storage pile, to minimize emissions resulting from windy conditions. The drop distance is from the dump box to the pad, typically +/-3 feet.
- If fugitive emissions are observed from the coal, wood waste, wood chip, or sludge piles, the piles will be wetted down via trucks, hydrants, or whatever means necessary to stop the fugitive emissions.

2.1 The transportation of bulk or raw materials such as ash, wood, wood chips, sludge, coal, and miscellaneous by-products are a potential source of fugitive dust.

Control methods for controlling fugitive emissions resulting from the transportations of bulk materials include the following:

- Contracted trucks hauling coal or other materials on-site should remain covered until ready to unload. Trucks hauling materials off-site should be covered immediately after being filled.
- Trucks and dumpsters should not be loaded such that materials in the boxes exceed the height of the box sidewalls.
- Restricting the speed limit of the vehicles transporting the raw or bulk materials. The vehicle speed limits are 15 MPH on all mill roads south of the Waste Water Treatment Plant (WWTP) and 30 MPH on all other roads north of the WWTP.
- Routine maintenance maintains tight trucks and dumpsters to prevent and eliminate leakages.
- Truck bodies used to transport wood are swept clean once the wood has been unloaded.

3.1 The outdoor conveyance of raw or bulk materials is a potential source of fugitive dust.

Control methods for conveying materials include the following:

- All conveyor belts for transporting coal, wood waste, sludge, and wood chips are 210-degree to completely enclosed and the enclosures are maintained.
- Spill materials from the ground under conveyors are removed on an as-needed basis.

4.1 The use of roads and lots are a potential source of fugitive dust.

Control methods for minimizing or eliminating fugitive emissions from roads and lots include the following:

- A number of roadways/lots have been paved and maintained to control fugitive dust. This includes River Road, South Kiln Road, North Kiln Road, Center Road, Low Road, High Road, Alum Road, 1st Street (to the landfill), 2nd Street, and 3rd Street (to High Road), Employee and truck parking lots, and coal, wood, wood waste, and wood chip storage areas.
- The woodpad where most of the wood is handled/unloaded will be wet down by operators in the summer months on an as needed basis. Operators will run water hoses and “dam up” the pad area to maintain wetted conditions and minimize road dust.

- The mill roadways will be mechanically cleaned with a vacuum type street sweeping truck twice per year, after snowcover has melted. Additional cleaning of particular roads or parking areas by sweeping or flushing/watering will be performed on an as needed basis.
- The mill gravel roads will be maintained by grading and filling in areas where the road gravel thickness causes "pot holes" each Spring and on an as needed basis.
- The high traffic volume gravel roads will be treated with a dust-suppressant compound (calcium chloride solution) in the summer as needed. The calcium chloride solution is applied using a tanker/application truck. When calcium chloride is applied, care is taken to avoid spraying the solution near groundwater monitoring wells.
- No. 11 ash handlers regularly wash the road and turn-around in the ash loading area. The roadway adjacent to the No. 11 ash loading area is sloped to facilitate drainage of fugitive dust to the process sewer.

Plan Revision Record

Revision Date	Description of Change	Reviewer
8/9/06	Original document	
7/8/16	Updated permit number in first paragraph, added document header and revision table	P. LaFleur
9/28/16	Added "Contracted" to first bullet in section 2.1 to indicated that only contracted trucks are required to be covered.	p. LaFleur

Malfunction Abatement Plans (MAP)

Kraft Mill

Utilities

Starch Unloading

KRAFT MILL

Malfunction Abatement Plan

Verso Corporation

Verso Escanaba LLC
Escanaba, Michigan

Updated March 2020

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APPENDIX A 25

1. INTRODUCTION

The purpose of this Malfunction Abatement Plan (MAP) is to prevent, detect, and correct malfunctions or equipment failures resulting in emissions exceeding any applicable emission limit in accordance with Rule 336.1911. The original MAP was approved by the Michigan Department of Environment, Great Lakes, and Energy (EGLE) in the 1990's, see file 8.17.1 for further details. The MAP identifies how Verso Escanaba LLC (VE) will minimize pollutant emissions during periods of startup, shutdown, and malfunction. This document provides a framework for preventing pollutant emissions through good operating practices while also identifying quick corrective actions when required. In many cases the required corrective action will depend on the type of incident that has occurred. For this reason corrective actions are not necessarily intended to be implemented in the order they are listed. This document will be updated periodically to incorporate any corrective actions that are not included in the plan at this time. Appendix A contains a list of critical spare parts that are maintained in inventory at this facility.

It should be noted that several rules have been implemented to address these same issues since the time the original MAP was prepared. Specifically, 40 CFR 63 Subpart S (MACT I) and Subpart MM (MACT II) address startup, shutdown, and malfunction (SSM) procedures for the low volume high concentration (LVHC) non condensable gas (NCG) system, the high volume low concentration (HVLC) system, the pulping condensate collection and treatment system, the bleach plant, the recovery furnace, the smelt dissolving tank, and the lime kiln. Please refer to the MACT I and MACT II SSM Plans for specific details around these systems. In addition, 40 CFR 64 Continuous Assurance Monitoring (CAM), addresses how pollution control equipment is continuously monitored to minimize air emissions on several sources. Please see the CAM Plan for more details.

2. WOODYARD

2.1 Introduction

Debarking and chipping occurs in the woodyard. After debarked wood is processed in the chippers it is pneumatically transferred to surge bins. Two cyclones are used to control particulate emission from these surge bins.

2.2 Pollutant Emission Control

Two surge bin cyclones (#1 and #2 Chipper Cyclones) are used to control particulate emissions in the woodyard.

2.3 Preventive Maintenance

1. The cyclones are visually inspected weekly by operations to ensure proper operation and pollution control, repairs are made as necessary.

2. The cyclones are inspected regularly by maintenance and repairs are made as necessary. See the Title V Inspection and Maintenance (I&M) Plan for more details.

2.4 Monitored Operating Variables

The cyclones are visually inspected weekly to ensure proper operation and pollution control.

2.5 Corrective Actions for Startup, Shutdown or Malfunction Abatement

1. Cyclone pluggage

    - Stop processing chips through plugged cyclone and, if necessary, place the alternate wood process line in operation
    - Clean and, if necessary, repair cyclone

2. Hole in cyclone

    - Stop processing chips through damaged cyclone and, if necessary, place the alternate wood process line in operation
    - Repair cyclone

3. CHIP THICKNESS SCREENING

3.1 Introduction

All chips in the screening room pass over one of four thickness screens. Each of these four chip thickness screens has its own cyclone and fan. These cyclones are an integral part of an air density separator (ADS) system that is designed to protect chip slicers from receiving any metal objects that could damage the slicer knives. Chips that are light enough are blown to one of four ADS cyclones where they fall out and go to a slicer. Air leaves the cyclone and exits out the top of the chip thickness building. Cyclone air flow is controlled by the vacuum on the suction side of the fan.

Two reclaim cyclones are used to control particulate emissions during the transfer of purchased chips from storage to chip thickness screening. Air from pneumatic blowers controls air flow through the cyclones.

3.2 Pollutant Emission Control

Six cyclones (#1 and #2 Chip Reclaim Cyclones and #1A, #2A, #1B, & 2B Air Density Separator Cyclones) are used in chip thickness screening to control particulate emissions.

3.3 Preventive Maintenance

1. The cyclones are visually inspected weekly by operations to ensure proper operation and pollution control, repairs are made as necessary.

2. The cyclones are inspected regularly by maintenance and repairs are made as necessary. See the Title V I&M Plan for more details.

3.4 Monitored Operating Variables

1. The vacuum on each of the ADS cyclones is monitored periodically by the day supervisor.

2. An alarm in the control room alerts the screen room operator whenever an air density separator fan kicks out.

3. The cyclones are visually inspected weekly to ensure proper operation and pollution control.

3.5 Corrective Actions for Startup, Shutdown or Malfunction Abatement

1. Air density fan trip

    - The flow of chips is automatically diverted to one or more operating separator lines
    - Repair or replace fan as necessary

2. ADS cyclone pluggage

    - Divert chip flow to operating separator line(s)
    - Clean and, if necessary, repair cyclone

3. Reclaim cyclone pluggage

    - Stop processing chips through plugged cyclone and, if necessary, use the alternate wood processing line
    - Clean and, if necessary, repair cyclone

4. Hole in reclaim cyclone

    - Stop processing chips through damaged cyclone and, if necessary, place the alternate wood process line in operation
    - Repair cyclone

4. LVHC NCG COLLECTION SYSTEM

4.1 Introduction

Low Volume High Concentration (LVHC) noncondensible gases (NCGs) are collected in three separate gas collection and conveyance systems; the Digester NCG System; the Evaporator NCG System; and the Stripper Off-Gas (SOG) System. Vent gases from the digester blow heat recovery system, the turpentine recovery system, and the stripper column feed tank are collected in the Digester NCG collection system. Vent gases from the multiple-effect evaporator aftercooler and hotwell are collected in the Evaporator NCG collection system. Stripper off-gases from the treatment of pulping condensates with low-pressure steam are collected in a SOG collection system. Each of these gas collection systems routes HAPs and malodorous gases to either the Thermal Oxidizer (or the Lime Kiln as a back-up) to be burned.

VE has a MACT I SSM Plan to address LVHC collection and treatment. The SSM Plan ensures good air pollution control practices are followed to minimize emissions; details how to correct process control malfunctions as soon as possible; and details how excess emissions events are recorded. Please refer to the MACT I SSM Plan for details regarding the LVHC system.

4.2 Pollutant Emission Control

LVHC gases are incinerated in the Thermal Oxidizer or the Lime Kiln as a back-up. Please refer to the MACT I SSM Plan for details regarding the LVHC system.

4.3 Preventive Maintenance

1. Monthly and annual inspections are conducted on the LVHC collection system in accordance with MACT I. Please see the MACT I SSM Plan for details.

2. The LVHC system is inspected regularly and repairs are made as necessary. See the Title V I&M Plan for details.

4.4 Monitored Operating Variables

Please see the MACT I SSM Plan for details.

4.5 Corrective Actions for Startup, Shutdown and Malfunction Abatement

Please see the MACT I SSM Plan for details.

5. HVLC NCG COLLECTION SYSTEM

5.1 Introduction

High Volume Low Concentration (HVLC) NCGs are collected from several MACT regulated sources, including the primary knotters and knot drainer, the four-stage brownstock washing system, and the brownstock washer filtrate tanks. The HVLC gases collected from the knotting and washing systems are regulated by 40 CFR 63 Subpart S (MACT I). The Escanaba Mill also collects HVLC gases from the digester air evacuation system and various black liquor and salt cake storage tanks not regulated by MACT I; vent gases from these non-regulated equipment items are collected for odor reduction purposes. The brown stock washer vent gas collection system routes HAPs and malodorous gases from the collected HVLC sources to the No. 10 Recovery Furnace to be burned.

VE has a MACT I SSM Plan to address HVLC collection and treatment. The SSM Plan ensures good air pollution control practices are followed to minimize emissions; details how to correct process control malfunctions as soon as possible; and details how excess emissions events are recorded. Please refer to the MACT I SSM Plan for details regarding the HVLC system.

5.2 Pollutant Emission Control

HVLC gases are destroyed in the No. 10 Recovery Furnace. Please refer to the MACT I SSM Plan for details regarding the HVLC system.

5.3 Preventive Maintenance

1. Monthly and annual inspections are conducted on the HVLC collection system in accordance with MACT I. Please see the MACT I SSM Plan for details.

2. The HVLC system is inspected regularly and repairs are made as necessary. See the Title V I&M Plan for details.

5.4 Monitored Operating Variables

Please see the MACT I SSM Plan for details.

5.5 Corrective Actions for Startup, Shutdown and Malfunction Abatement

Please see the MACT I SSM Plan for details.

6. BLEACH PLANT

6.1 Introduction

Bleach plant gases are collected from the five-stage bleaching system as required by MACT I. The bleach plant gas collection system routes chlorinated hazardous air pollutants (HAPs) to a two-stage scrubbing system where the scrubbing medium removes chlorinated HAPs from the bleach plant vent gases.

VE has a MACT I SSM Plan to address chlorinated HAP collection and treatment. The SSM Plan ensures good air pollution control practices are followed to minimize emissions; details how to correct process control malfunctions as soon as possible; and details how excess emissions events are recorded. Please refer to the MACT I SSM Plan for details regarding the bleach plant system.

6.2 Pollutant Emission Control

Chlorinated HAPs from the bleaching system are treated by a two-stage scrubbing system. Please refer to the MACT I SSM Plan for details regarding the bleach plant system.

6.3 Preventive Maintenance

1. Monthly inspections are conducted on the bleach plant collection system in accordance with MACT I. Please see the MACT I SSM Plan for details.

2. The bleach plant system is inspected regularly and repairs are made as necessary. See the Title V I&M Plan for details.

6.4 Monitored Operating Variables

Please see the MACT I SSM Plan for details.

6.5 Corrective Actions for Startup, Shutdown and Malfunction Abatement

Please see the MACT I SSM Plan for details.

7. PULPING CONDENSATES

7.1 Introduction

Foul pulping condensates are collected from several equipment systems and are regulated under MACT I provisions. These include:

- Blow heat accumulator overflow
- Turpentine decanter underflow

The Escanaba Mill also collects other foul pulping condensates not necessary to demonstrate compliance with MACT I provisions. These include:

- Evaporator hotwell condensates
- Evaporator foul condensates
- LVHC system condensates

Collected pulping condensate streams from the evaporator hotwell, evaporator foul condensate tank, and the NCG and SOG condensate seal tanks are pumped individually to the stripper column feed tank. Turpentine decanter underflow and accumulator overflow condensates drain by gravity to the column feed tank. From the column feed tank, foul pulping condensates are pumped to the steam stripper column for treatment.

Foul condensates from the column feed tank are transferred by the stripper feed pumps through strainers and condensate pre-heaters to the steam stripper column. Stripper column feed is heated by indirect contact with stripped condensate. Stripper off-gases are collected and vented to the Thermal Oxidizer or the Lime Kiln as a back-up to be burned. Stripped condensate is pumped to the brown stock washer showers for additional collection and treatment in the brown stock washer vent gas collection system.

VE has a MACT I SSM Plan to address pulping condensate collection and treatment. The SSM Plan ensures good air pollution control practices are followed to minimize emissions; details how to correct process control malfunctions as soon as possible; and details how excess emissions events are recorded. Please refer to the MACT I SSM Plan for details regarding the pulping condensate system.

7.2 Pollutant Emission Control

Pulping condensates are pretreated in the steam stripper column. The stripped condensates are then sent to the brownstock washers for additional treatment. Please refer to the MACT I SSM Plan for details regarding the pulping condensate system.

7.3 Preventive Maintenance

1. Monthly and annual inspections are conducted on the pulping condensate collection system in accordance with MACT I. Please see the MACT I SSM Plan for details.

2. The pulping condensate system is inspected regularly and repairs are made as necessary. See the Title V I&M Plan for details.

7.4 Monitored Operating Variables

Please see the MACT I SSM Plan for details.

7.5 Corrective Actions for Startup, Shutdown and Malfunction Abatement

Please see the MACT I SSM Plan for details.

8. LIME SLAKER

8.1 Introduction

The purpose of the lime slaker, also known as the recausticizing system is to hydrate quicklime and to initiate the causticizing reaction that regenerates sodium hydroxide for pulp cooking. To control particulate emissions that arise from the addition of quicklime a wet scrubber is used. Please note that the lime slaker is subject to the continuous assurance monitoring (CAM) requirements of 40 CFR 64 and VE has a CAM Plan for the lime slaker to address these requirements. Please see the CAM Plan for more details.

8.2 Pollutant Emission Control

Particulate emissions from the lime slaker are controlled through the use of a wet scrubber. Green liquor from the smelt dissolving tank is the normal scrubbing medium.

8.3 Preventive Maintenance

1. Inspections are performed on the lime slaker system routinely by operations. This includes cleaning out the build-up that accumulates in the scrubber and vent piping and checking the temperature of the nozzles that feed the scrubber to ensure they are not plugged. Any abnormalities, problems or concerns are reported to the supervisory personnel and corrective actions are taken as necessary.

2. The lime slaker and scrubber system is inspected regularly my maintenance and repairs are made as necessary. See the Title V I&M Plan for details.

8.4 Monitored Operating Variables

1. The lime kiln operator is responsible for monitoring the following variables to ensure proper operation of the slaker scrubber.

   - green liquor pressure to scrubber
   - green liquor flow to the scrubber
   - vacuum on the suction of the slaker scrubber exhaust fan

2. The lime kiln operator receives an alarm and is responsible for taking corrective actions when the lime slaker is running and the scrubber flow drops below 150 gpm. See the CAM Plan for more details.

8.5 Corrective Actions for Startup, Shutdown and Malfunction Abatement

1. Slaker scrubber fan stops

    - Try to restart fan
    - Reset starter and try to restart
    - Repair fan/motor

2. Fan running but no vacuum on fan suction

    - Check belts and change if necessary
    - Unplug pressure transmitter tap

3. Low or no green liquor flow to scrubber

    - Shut down the slaker if no flow is present
    - Stroke automatic valve and repair if necessary
    - Check rotometers to each stage and adjust if necessary
    - Valve out flow to scrubber and unplug lines

4. Low green liquor pressure to the slaker

    - Stroke automatic valve and repair if necessary
    - Unplug pressure tap

9. LIME KILN

9.1 Introduction

VE operates a rotary lime kiln to recover quicklime from lime mud. The system begins with the lime mud pre-coat filter system, which feeds lime mud to the rotary kiln, and ends with the reburned lime silo where product lime is conveyed by bucket elevator from the product end of the lime kiln. The lime kiln is subject to the requirements of 40 CFR 63 Subpart MM (MACT II). Exhaust gases from the lime kiln are treated in a venturi scrubber with alkaline scrubbing medium to remove particulate matter (PM) and PM-hazardous air pollutants (HAPs) from the kiln exhaust gases. Combustion control is used to control total reduced sulfur (TRS) emissions.

Malfunction of the wet venturi scrubber, monitoring systems, or any of the components of the lime kiln could result in periods of uncontrolled HAP emissions. The SSM Plan describes mill procedures for controlling HAP emissions during startup and shutdown events and plans for the abatement of uncontrolled emissions caused by malfunctions of process equipment, air pollution control equipment, and monitoring equipment. Please refer to the MACT II SSM Plan for details regarding the lime kiln system.

9.2 Pollutant Emission Control

In the process of drying and burning lime mud in the kiln, lime dust becomes entrained in the exhaust gases which exit at the feed end of the unit. To control these particulate emissions a scrubber system consisting of a lime dust ash hopper, venturi scrubber and a cyclonic separator or mist eliminator is used. An induced draft fan, located between the dust hopper and the venturi scrubber, is used to pull gases through the kiln and push them through the venturi scrubber, mist eliminator and, ultimately, out the lime kiln stack. The area of the venturi scrubber throat may be adjusted to optimize particulate collection efficiency.

Efficient combustion is the primary means used to control the small amounts of TRS gases which form in the lime kiln. A TRS continuous emission monitoring system (CEMS) is used as an indicator of TRS emissions. This monitor is used to assess the effectiveness of any corrective actions that may be necessary to reduce TRS during an upset condition.

Please refer to the MACT II SSM Plan for more details regarding the lime kiln system.

9.3 Preventive Maintenance

1. Inspections are performed on the lime kiln system routinely by operations. Any abnormalities, problems or concerns are reported to the supervisory personnel and corrective actions are taken as necessary. See the MACT II SSM Plan for more details.

2. The lime kiln and scrubber system is inspected regularly by maintenance and repairs are made as necessary. See the Title V I&M Plan for details.

9.4 Monitored Operating Variables

9.4.1 Venturi Scrubber

1. The lime kiln operator periodically monitors the following variables through the panel board or Foxboro system.

   - Flow to scrubber
   - Scrubber differential pressure
   - Scrubber throat damper position
   - Mill water flow to the sump
   - Bleed flow from the sump to the mud washer
   - Scrubber sump solids
   - Scrubber sump level

2. The following alarms are monitored by the lime kiln operator. Please see the MACT II SSM Plan for more details.

   - Low scrubber flow
   - Low scrubber differential pressure

9.4.2 Lime Kiln

1. The lime kiln operator monitors the following variables through the panel board or Foxboro system to minimize TRS emissions.

   - Lime kiln flue gas percent oxygen
   - Vibration of inboard and outboard bearings on ID fan
   - Flame scanner readings
   - Gas flow and valve positions
   - Air flow to lime kiln
   - NCGs to lime kiln or incinerator
   - Lime kiln TRS
   - Temperature profile

2. The following alarms are monitored by the lime kiln operator.

   - Low NCG flow to lime kiln
   - Kiln not rotating

- Bearing cooling water pump failure (low flow switch)
- Low lime kiln percent oxygen
- Low fuel gas pressure
- High TRS

9.5 Corrective Actions for Startup, Shutdown and Malfunction Abatement

9.5.1 Venturi Scrubber

1. Scrubber circulation pump failure

   - Switch to spare pump
   - Repair or replace failed pump

2. Scrubber sump level transmitter failure which causes the sump to empty

   - Open the mill water valve to sump
   - Ensure that mill water flow maintains sump level
   - Clean bubble tube
   - Repair transmitter

3. Scrubber sump level transmitter failure which causes the sump to overflow

   - Clean bubble tube

4. Mist eliminator pluggage

   - Maintain higher differential pressure by adjusting scrubber throat damper

5. Low or no scrubber water flow to venturi scrubber

   - Visually check level in scrubber sump and add make-up water if necessary
   - Switch to spare pump
   - Check injectors to scrubber throat and, if not hot, blow out with air
   - If spare pump does not help, take fire out of kiln and shut down the ID fan
   - Put lime kiln on auxiliary engine
   - Inspect automatic valve to verify it is operating properly
   - Calibrate flowmeter

9.5.2 Lime Kiln

1. Induced draft fan failure

- Put all NCGs into incinerator
- Put lime kiln on auxiliary engine
- Continue to operate scrubber while fan maintenance is being performed
- Take lime mud off of lime filters
- Repair fan/motor

2. High vibration on the induced draft fan

    - Put all NCGs into incinerator
    - Put lime kiln on auxiliary engine
    - Continue to operate the scrubber while fan maintenance is being performed
    - Take lime mud off of lime filters
    - Sand blast induced draft fan
    - If vibration is still apparent, check fan bearings

3. Noncondensible booster fan failure

    - Put all NCGs into incinerator
    - Open dilution air valve as far as possible
    - Repair fan/motor

4. Dilution air blower failure

    - Put all NCGs into incinerator
    - Shut down mud filters
    - Take fire out of kiln
    - Put lime kiln on auxiliary engine
    - Repair fan/motor

5. Lime kiln drive failure

    - Put all NCGs into incinerator
    - Shut down mud filters
    - Take fire out of kiln
    - Put lime kiln on auxiliary engine
    - Repair motor or coupling
    - If a repair is necessary on the drive chain, the auxiliary engine must be down as well.

6. High scrubber throat differential pressure

    - Open scrubber throat damper
    - Check pressure transmitter lines for pluggage

7. One flame scanner failure

    - Clean or replace flame scanner (NCGs may remain in lime kiln)

9.6 TRS Reduction Action Plan

When the average TRS reading, corrected to 10% O_2, exceeds 10 ppm (dry volume) for any one hour period the following actions are taken, as necessary, to reduce TRS emissions. Any actions taken are consistent with safe operating practices.

- If NCGs are being burned, switch the NCGs to the incinerator if this unit is operating normally
- If flue gas O_2 readings are low, reduce natural gas flow or open scrubber throat damper
- If flue gas O_2 is high and/or the lime mud is cold, increase the natural gas feed rate to increase the combustion temperature and/or close the scrubber throat damper
- Reduce the area of the venturi scrubber throat (to increase flue gas residence time)

10. SODA ASH UNLOADING

10.1 Introduction

Soda ash is used as a makeup chemical for the sulfur dioxide (SO_2) scrubber on the thermal oxidizer odor control system. Particulate emissions from the dry material handling are controlled with a baghouse system.

10.2 Pollutant Emission Control

A pulse jet baghouse is used to control particulate emissions during soda ash unloading. An air filter provides secondary treatment for gases exhausting from the pulsed jet baghouse. In this manner efficient particulate control is achieved.

10.3 Preventive Maintenance

1. Inspections are performed on the soda ash unloading system routinely by operations. Any abnormalities, problems or concerns are reported to the supervisory personnel and corrective actions are taken as necessary.

2. The soda ash unloading system is inspected regularly by maintenance and repairs are made as necessary. See the Title V I&M Plan for details.

10.4 Monitored Operating Variables

1. The equipment tender monitors differential pressure for the baghouse and filter. Low differential pressure indicates a rip or tear in a bag(s), while high differential pressure indicates pluggage of bag(s), the soda ash transfer line, or the filter.

2. The bleach plant operator responds to the following alarms:

   - Chain failure on rotary feeder
   - High differential pressure across vacuum filter
   - High vacuum on the vacuum blower
   - High pressure on the pressure blower
   - High level in the soda ash receiver
   - Soda ash unloading pump has stopped

10.5 Corrective Actions for Startup, Shutdown or Malfunction Abatement

1. High pressure

   - Check operation of rotary feeder and repair if necessary
   - Verify vacuum breaker valve has opened to minimize soda ash loading to the soda ash receiver
   - Unplug soda ash line from receiver to top of soda ash tank

2. Loss of vacuum

   - Stop processing soda ash
   - Check belts on vacuum blower
   - Replace filter (check vacuum receiver bags to make sure all are intact)

3. High vacuum

   - Check filter for pluggage
   - Inspect vacuum receiver to verify all bags in place; replace cartridge and/or bag if they have been crushed or fallen off

4. High level in soda ash receiver

   - Stop processing soda ash
   - Verify vacuum breaker valve is working
   - Check belts on pressure blower
   - Have maintenance inspect rotary feeder

11. THERMAL OXIDIZER (ODOR CONTROL) SYSTEM

11.1 Introduction

The purpose of the thermal oxidizer is to control odor and to recover sulfur for re-use in kraft pulping. The thermal oxidizer incinerates LVHC noncondensible gases (NCGs) from the evaporators, steam stripper, and the digesters and is regulated under New Source Performance Standards (NSPS) 40 CFR 60 Subpart BB, 40 CFR 63 Subpart S (MACT I), and 40 CFR 64 CAM. The odor control system consists of a thermal oxidizer, also known as the incinerator at VE, and a sulfur dioxide (SO_2) scrubber. Total reduced sulfur (TRS) and SO_2 emissions are limited at the discharge of the SO_2 scrubber. The lime kiln serves as a back-up incineration device for the thermal oxidizer. Please see the LVHC portion of the MACT I SSM Plan and the CAM Plan for more details.

11.2 Pollutant Emission Control

The kraft process generates by-product NCGs which contain significant concentrations of odorous TRS compounds. The thermal oxidizer is designed to control odor emissions by oxidizing these reduced sulfur compounds to SO_2. Three sources of NCGs are combusted in the incinerator: NCGs from the digester system, the evaporator hotwell system, and the steam stripper.

SO_2 formed at the incinerator is scrubbed in an SO_2 scrubber to recover sulfur for reuse in the kraft process. The SO_2 scrubber is a two stage packed tower which typically uses sodium carbonate (Na_2CO_3), or soda ash, as the scrubbing medium. Sodium hydroxide can also used as a scrubbing medium. The SO_2 reacts to form carbon dioxide (CO_2) which exits the scrubber with the other gases, and sodium sulfite (Na_2SO_3) which is retained in the liquid scrubbing medium.

11.3 Preventive Maintenance

11.3.1 LVHC NCG Collection Systems

See section 4.0 LVHC NCG Collection System.

11.3.2 Thermal Oxidizer

1. Temperature is monitored continuously and inspections are performed on the thermal oxidizer routinely by operations. Any abnormalities, problems or concerns are reported to the supervisory personnel and corrective actions are taken as necessary. See the MACT I SSM Plan for more details.

2. The thermal oxidizer is inspected regularly by maintenance and repairs are made as necessary. See the Title V I&M Plan for details.

11.3.3 Sulfur Dioxide Scrubber

1. Flow, pH, and differential pressure are monitored continuously and inspections are performed on the SO_2 scrubber routinely by operations. Any abnormalities, problems or concerns are reported to the supervisory personnel and corrective actions are taken as necessary. See the MACT I SSM Plan and the CAM Plan for more details.

2. The SO_2 scrubber is inspected regularly by maintenance and repairs are made as necessary. See the Title V I&M Plan for details.

11.4 Monitored Operating Variables

11.4.1 NCG Collection Systems

See section 4.0 LVHC NCG Collection System.

11.4.2 Thermal Oxidizer

1. The following variables are monitored by the lime kiln operator through the Foxboro system.

   - Incinerator temperature (4 locations)
   - Percent oxygen in flue gas
   - Gas flow to the incinerator
   - Steam ejector vacuum for the stripper and hotwell gases to the incinerator or lime kiln
   - Location of all three gas sources (incinerator or kiln)

2. The following alarms are monitored by the lime kiln operator. Please see the LVHC section of the MACT I SSM Plan for more details.

   - System shutdown
   - NCG burner low pressure
   - Flame failure
   - Low/high/high high incinerator temperature
   - Low primary air flow to natural gas burner
   - Power supply faults #1 & #2
   - SO2 scrubber ID fan tripped
   - PLC failure
   - Low primary air pressure

11.4.3 Sulfur Dioxide Scrubber

1. The lime kiln operator monitors the following variables through the Foxboro system.

   - pH of recirculation scrubbing medium for the 1st stage and 2nd stage
   - Soda ash flow (alarms at low flow)
   - Bleed flow
   - Scrubber differential pressure
   - Tank levels for 1st and 2nd stages
   - Bleed flow density
   - SO2 scrubber ID fan speed
   - Scrubber circulation flow

2. The following alarms are monitored by the lime kiln operator. Please see the CAM Plan for more details.

   - Low differential pressure
   - Low Flow
   - Low pH

11.5 Corrective Actions for Startup, Shutdown and Malfunction Abatement

11.5.1 NCG Collection Systems

- See section 4.0 LVHC NCG Collection System.

11.5.2 Thermal Oxidizer

Below are corrective actions taken by VE for certain scenarios, however, please see the LVHC section of the MACT I SSM Plan for more details.

1. Incinerator kickout or flame out

   - Put all NCGs into lime kiln
   - Investigate problem with incinerator
   - Take whatever corrective actions are appropriate before putting NCGs back in incinerator

2. Primary air fan failure (incinerator still running)

   - Check belts on fan
   - Repair fan/motor

3. Secondary air fan failure (incinerator still running)

    - Check belts on fan
    - Repair fan/motor

11.5.3 Sulfur Dioxide Scrubber

Below are corrective actions taken by VE for certain scenarios, however, please see the LVHC section of the MACT I SSM Plan and the CAM Plan for more details.

1. Scrubber induced draft fan failure

    - Put all NCGs into lime kiln
    - Investigate problem with induced draft fan
    - Take whatever corrective actions are appropriate before putting NCGs back in incinerator

2. Scrubber recirculation pump failure

    - Valve in and start spare pump
    - Investigate problem with failed pump
    - Repair or replace failed pump

3. Scale buildup in the SO2 scrubber

    - Verify water softener operation
    - Determine if it is necessary to shutdown and clean scrubber packing
    - If cleaning is necessary, put all NCGs into lime kiln before shutting down scrubber for maintenance

4. Quench chamber pump failure

    - Switch to spare pump
    - Repair pump/motor

5. Bleed flow high density

    - Take a sample from first stage and check density with a hydrometer
    - Increase bleed flow in MANUAL to reduce density in first stage
    - Calibrate density meter

12. REFINER MECHANICAL PULPING

12.1 Introduction

The Refiner Mechanical Pulp (RMP) mill mechanically refines wood chips into pulp. Chips from storage piles are blown into a Chip Silo and then processed in a disc scalper before being pneumatically transferred to a Chip Surge Bin. From the Chip Surge Bin, the chips are washed, steamed and mechanically pulped in primary and secondary refiners. Following refining, the pulp is cured, screened, and washed. Typically filler, caustic, and bleaching agent are added to the pulp before entering a storage chest. The pulp is thickened and additional bleaching agent may be added. The chip silo cyclone and the chip surge bin cyclone are used to control particulate emissions.

12.2 Pollutant Emission Control

Particulate emissions from the pneumatic transfer of wood chips to the chip storage silo and the chip surge bin are controlled using cyclones.

12.3 Preventive Maintenance

1. The cyclones are visually inspected weekly by operations to ensure proper operation and pollution control, repairs are made as necessary.

2. The cyclones are inspected regularly by maintenance and repairs are made as necessary. See the Title V Inspection and Maintenance (I&M) Plan for more details.

12.4 Monitored Operating Variables

The cyclones are visually inspected weekly to ensure proper operation and pollution control.

12.5 Corrective Actions for Startup, Shutdown or Malfunction Abatement

1. Cyclone pluggage

    - Stop processing wood chips
    - Clean and, if necessary, repair cyclone

2. Hole in cyclone

    - Stop processing chips through damaged cyclone
    - Repair cyclone

Plan Revision Record

Revision Date	Description of Change	Reviewer
7/28/16	Added section for Lime Silo Storage Bins (incomplete as of 7/28/16), added Verso headings, added this revision table	P. LaFleur

APPENDIX A

Critical Spare Parts List

Bleach Plant

1. #1 sump pump, bearing bracket
   (Equip # 25-4-0310-20, Stores # 00215164)
2. #1 sump pump motor
   (Equip # 25-4-3315-80)
3. #2 sump pump, bearing bracket
   (Equip # 25-4-3330-20, Stores # 00215164)
4. #2 sump pump motor
   (Equip # 25-4-3335-80)

Thermal Oxidizer Odor Control System

1. jet condenser pump, bearing bracket
   (Equip # 33-4-0612-20)
2. jet condenser pump motor
   (Equip # 33-4-0616080)
3. rupture discs

UTILITIES

Malfunction Abatement Plan

Updated March 2020

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1. INTRODUCTION

The purpose of this Malfunction Abatement Plan (MAP) is to prevent, detect, and correct malfunctions or equipment failures resulting in emissions exceeding any applicable emission limit in accordance with Rule 336.1911. The original MAP was approved by the Michigan Department of Environment, Great Lakes, and Energy (EGLE) in the 1990's, see file 8.17.1 for further details. The MAP identifies how Verso Escanaba LLC (VE) will minimize pollutant emissions during periods of startup, shutdown, and malfunction. This document provides a framework for preventing pollutant emissions through good operating practices while also identifying quick corrective actions when required. In many cases the required corrective action will depend on the type of incident that has occurred. For this reason corrective actions are not necessarily intended to be implemented in the order they are listed. This document will be updated periodically to incorporate any corrective actions that are not included in the plan at this time. Appendix A contains a list of critical spare parts that are maintained in inventory at this facility.

It should be noted that several rules have been implemented to address these same issues since the time the original MAP was prepared. Specifically, 40 CFR 63 Subpart S (MACT I) and Subpart MM (MACT II) address startup, shutdown, and malfunction (SSM) procedures for the low volume high concentration (LVHC) non condensable gas (NCG) system, the high volume low concentration (HVLC) system, the pulping condensate collection and treatment system, the bleach plant, the recovery furnace, the smelt dissolving tank, and the lime kiln. Please refer to the MACT I and MACT II SSM Plans for specific details around these systems. In addition, 40 CFR 64 Continuous Assurance Monitoring (CAM), addresses how pollution control equipment is continuously monitored to minimize air emissions on several sources. Please see the CAM Plan for more details.

2. SALTCAKE UNLOADING

2.1 Introduction

Saltcake can be added to the salt cake mix tank in the chemical recovery area to maintain liquor sulfidity as required, although this is rarely necessary. Particulate emissions from saltcake unloading are controlled with a baghouse.

2.2 Pollutant Emission Control

A baghouse is used to control particulate emissions during saltcake unloading, thereby, providing efficient particulate control.

2.3 Preventive Maintenance

1. If the saltcake unloading system has not been used for more than one year, an inspection is performed by the first equipment tender prior to using the system. Bag replacement and repairs are made as necessary.

2. The saltcake unloading system is inspected by the utilities maintenance department as needed. Bag replacement and repairs are made as necessary.

2.4 Monitored Operating Variables

Operations monitors differential pressure for the baghouse. Low differential pressure indicates a rip or tear in a bag(s), while high differential pressure indicates pluggage of a bag(s) or the saltcake transfer line.

2.5 Corrective Actions for Startup, Shutdown or Malfunction Abatement

Baghouse malfunction

- Stop transferring saltcake
- Repair the baghouse system

3. NO. 10 RECOVERY FURNACE

3.1 Introduction

The Chemical Recovery Furnace System is used to regenerate chemicals used in wood pulping. The No. 10 Recovery Furnace is rated for 565,000 pounds of steam per hour (approximately 950 million BTU per hour heat input), and produces steam for mill processes and steam turbine-generator sets for producing electricity. The No. 10 Recovery Furnace burns black liquor, natural gas, No. 6 fuel oil, and is permitted to burn used oil. Smelt from the recovery furnace is used to produce green liquor, a solution of sodium sulfide and sodium carbonate salts, when it is dissolved in water or weak wash in the Smelt Dissolving Tank. Also, the No. 10 Recovery Furnace receives gases from enclosures and closed-vent systems and is used to incinerate HVLC gases.

A wet bottom electrostatic precipitator (ESP) is used to control particulate emissions from the No. 10 recovery furnace. Efficient combustion control is the primary means of controlling TRS emissions. An opacity COMS and a TRS CEMS are used as performance indicators. The recovery furnace is subject to the requirements of New Source Performance Standards (NSPS) 40 CFR 60 Subpart BB, 40 CFR 63 Subpart S (MACT I), and 40 CFR 63 Subpart MM (MACT II).

Malfunction of the recovery furnace, the ESP, monitoring systems, or any of the components of the HVLC collection system could result in periods of uncontrolled hazardous air pollutant (HAP) emissions. VE has a MACT I SSM Plan and MACT II SSM Plan to address these situations. The SSM Plans describe mill procedures for controlling HAP emissions during startup and shutdown events and plans for the abatement of uncontrolled emissions caused by malfunctions of process equipment, air pollution control equipment, and monitoring equipment. Please refer to the MACT I and MACT II SSM Plans for details regarding the recovery furnace system.

3.2 Pollutant Emission Control

The electrostatic precipitator is used to control particulate emissions from the No. 10 recovery furnace. The ESP is divided into identical east and west cells which operate independently. This allows one side of the precipitator to be shut down for emergency maintenance while the other side is still operating. Each cell utilizes six transformer-rectifier or T-R sets which power the three collection fields. The T-R sets can be controlled by control units located in an air conditioned MCC (Motor Control Center) room. The T-R sets can also be controlled directly by the recovery furnace operator who monitors and adjusts key variables such as voltage and current.

Most of the total reduced sulfur (TRS) released in the furnace firebox is oxidized to SO_2 and subsequently scrubbed from the flue gas by gas phase reactions. A small fraction of the TRS from the furnace is released to the atmosphere. These TRS emissions are controlled through optimized furnace combustion and are monitored with a continuous emission monitoring system (CEMS). Please refer to the MACT I and MACT II SSM Plans for more details regarding the recovery furnace system.

3.3 Preventative Maintenance

Below are corrective actions taken by VE for certain scenarios, however, please see the HVLC section of the MACT I SSM Plan, the Recovery Furnace MACT II SSM Plan, and the Title V I&M Plan for more details.

The following maintenance is performed on the electrostatic precipitator.

1. The first equipment tender inspects the following items every shift during normal operation. Any abnormalities, problems or concerns will be investigated and further actions taken as necessary. Significant events are recorded on the operator's log sheet and, if necessary, reported to supervisory personnel.

    - Spot check noises made by rappers for uniformity of tapping noises and duration of cycle
    - Inspect T-R sets for leaking coolant
    - Rapper pressure should be greater than 90 psi and steady
    - All drag conveyors shafts should be turning
    - The makedown agitator should be running
    - Circulation pumps near agitator should be running
    - Trip currents on all T-R control sets should be in normal range
    - Air lines that feed compressed air to drive rappers should be properly connected
    - All bolts on top end of rappers should be securely fastened
    - Filters for the shell heater fan should be clean; change filters as necessary
    - Fans for shell heaters and penthouse heaters should be running and belts and motors functioning properly
    - The gauge on shell heater fan should read between the low and high preset values
    - Air conditioning should be on in the T-R control room

2. The first equipment tender will perform the following duties when it is necessary:

    - The air filters for the shell heater fan will be changed approximately once per week.

3. A visual inspection of the ESP is conducted weekly by operations. Any abnormalities are documented, reported to supervisory personnel, and corrective actions are taken.

4. Routine preventive maintenance is scheduled on the recovery furnace and the ESP and repairs are made as necessary. See the Title V I&M Plan for details.

3.4 Monitored Operating Variables

3.4.1 Particulate Control

An alarm appears on the control console when opacity exceeds 15%. The No. 10 recovery furnace operator monitors the following variables to help ensure compliance with the 20% 6-minute opacity limit. Please see the MACT II SSM Plan for more details.

- Opacity
- Voltage and current on T-R control sets
- Flue gas temperature at the precipitator inlet
- Flue gas flow through precipitator (sum of combustion air flows)
- Percent motor load current on drag conveyor

3.4.2 TRS Combustion Control

The following variables are monitored by the No. 10 operator to ensure compliance with TRS limits. Normally TRS, black liquor flow rate and opacity are recorded on log sheets on an hourly basis. An alarm is triggered when TRS concentrations exceed 3 ppm on a 1 hour average. See section 3.6 for more details.

- TRS
- black liquor flow rate
- black liquor solids
- black liquor temperature
- stack oxygen
- opacity
- CO
- primary air flow rate
- secondary air flow rate
- tertiary air flow rate
- primary air temperature
- secondary air temperature

3.5 Corrective Actions for Startup, Shutdown and Malfunction Abatement

Below are corrective actions taken by VE to control particulate emissions during startup, shutdown, or malfunction of the electrostatic precipitator for certain scenarios, however, please see the MACT II SSM Plan for more details.

1. During startup ensure that the precipitator is operating, consistent with safe operating practice, before firing black liquor in the furnace.

2. During shutdown ensure that the precipitator is operating until the fires are out, the boiler is cooled and the fans are at minimum flow.

3. If opacity approaches the opacity standard (20% on a 6 minute average) making an exceedance possible, the No. 10 recovery furnace operator takes the following actions, as necessary, to reduce opacity.

   - Check rapper pressure to make sure it is greater than 90 psi and steady
   - Ensure all T-R sets are operating
   - Adjust T-R sets by increasing wire voltages until sparking is detected or until the current limit is reached
   - Check liquor guns for holes in barrels and replace if necessary
   - Lower primary air flow
   - Lower liquor temperature to build up smelt bed
   - Lower oxygen supplied to furnace
   - Reduce liquor burning rate
   - Check rappers to ensure they are running

4. If the No. 10 recovery furnace operator fails to control opacity using the above procedures or if a significant reduction in black liquor burning rate is required for opacity control, the potential problems listed below are investigated.

   - Grounding of electrodes
   - Ribbon mixer failure
   - Drag conveyor failure
   - Buss support insulator failure
   - Rapper and rapper controller failure
   - T-R set failure
   - T-R controller failure

   If entry into one side of the ESP is required repairs are accomplished as follows:

   - Reduce liquor burning rate to less than 1.86 mmlbs/day and put 5 oil guns in the furnace
   - Set the liquor flow to 100 gpm
   - Isolate affected side of the precipitator
   - Shut down heaters on affected side and open access doors to facilitate cooling
   - Perform necessary maintenance

3.6 TRS Reduction Action Plan

1. When TRS exceeds 3 ppm (dry volume) corrected to 8% 02 based on a one hour average the recovery furnace operator takes the following actions, as necessary.

    - Call kraft mill foreman to determine if black liquor sulfidity is within target range
    - Check and, if necessary, clean furnace air ports
    - Check automatic air port rodders
    - Inspect liquor guns
    - Increase secondary air
    - If necessary, increase primary air (watch opacity)
    - Adjust liquor temperature
    - Adjust liquor gun angle
    - Increase liquor solids
    - Add caustic to precipitator makedown tank
    - Check primary air temperature

2. When TRS exceeds 5 ppm (dry volume) corrected to 8% 02 based on a one hour average the recovery furnace operator takes the following actions, as necessary.

    - Increase excess 02
    - Decrease liquor production rate
    - If on auxiliary fuel, adjust secondary air damper to maintain both bright flame and high secondary windbox pressure
    - Check calibration of TRS/0_2 CEMS

3. When the 02 corrected TRS exceeds 5 ppm (dry volume) for more than six consecutive hours or 10 ppm (dry volume) for more than one hour the recovery furnace operator takes the following actions.

    - Call the recovery superintendent (weekdays) or the person on call (nights or weekends).
    - If person on call is not available, call recovery superintendent
    - If recovery superintendent is not available, call the utilities manager
    - Call or page person on call for the Environmental Department
    - If necessary, shut the recovery furnace system down

4. SMELT DISSOLVING TANK

4.1 Introduction

Smelt from the recovery furnace is used to produce green liquor, a solution of sodium sulfide and sodium carbonate salts, when it is dissolved in water or weak wash in the Smelt Dissolving Tank. A wet scrubber is used to control particulate and TRS emissions from the smelt dissolving tank. The recovery furnace is subject to the requirements of New Source Performance Standards (NSPS) 40 CFR 60 Subpart BB and 40 CFR 63 Subpart MM (MACT II).

Malfunction of the smelt dissolving tank or the scrubber could result in periods of uncontrolled HAP emissions. VE has a MACT II SSM Plan which describes mill procedures for controlling HAP emissions during startup and shutdown events and plans for the abatement of uncontrolled emissions caused by malfunctions of process equipment, air pollution control equipment, and monitoring equipment. Please refer to the MACT II SSM Plan details regarding the smelt dissolving tank system.

4.2 Pollutant Emission Control

The purpose of the smelt tank is to dissolve smelt from the recovery furnace to form green liquor. The exhaust from the smelt tank is treated in a wet scrubber designed to control particulate and TRS emissions. Weak wash is the normal scrubbing media. Flow rate and fan status in the scrubber is continuously monitored to ensure compliance. Please refer to the MACT II SSM Plan for more details regarding the smelt dissolving tank system.

4.3 Preventive Maintenance

1. Scrubber flow rate and fan status are monitored continuously and inspections are performed on the smelt dissolving tank system routinely by operations. Any abnormalities, problems or concerns are reported to the supervisory personnel and corrective actions are taken as necessary. See the MACT II SSM Plan for more details.

2. The smelt dissolving tank scrubber is inspected regularly by maintenance and repairs are made as necessary. See the Title V I&M Plan for details.

4.4 Monitored Operating Variables

The No. 10 recovery furnace operator monitors the following variables on the smelt dissolving tank system through the Foxboro system to ensure compliance. Please see the MACT II SSM Plan.

- Scrubber differential pressure
- Smelt dissolving tank differential pressure
- Scrubber flow rate
- Scrubber fan status

4.5 Corrective Actions for Startup, Shutdown and Malfunction Abatement

Below are corrective actions taken by VE to control particulate and TRS emissions during startup, shutdown, or malfunction of the smelt dissolving tank system for certain scenarios, however, please see the MACT II SSM Plan for more details.

Fumes coming out of dissolving tank hoods

- Bypass scrubber
- Check for broken belts on fan
- Open valve on side of unit to check for high level of weak wash in scrubber (fan will rumble when this happens)
- If necessary, rod out the interior drain using the installed port on the back side of the unit (4^{th} floor)
- Check for plugged ductwork to fan (fan will run quietly and dissolving tank pressure will be positive) and, if necessary, clean with hot condensate
- If necessary, shut recovery furnace system down
- If necessary, bring in an outside contractor to assist in cleanup

5. NO. 8 BOILER

5.1 Introduction

The No. 8 Boiler is a Combustion Engineering boiler rated for 450,000 pounds of steam per hour (approximately 594 million BTU per hour heat input) that provides steam for mill processes and steam turbine-generator sets for producing electricity. A Flue Gas Recirculation system was installed on the No. 8 Boiler in 2003 to ensure compliance with the NOx emission limitations specified in Rule 336.1801. The No. 8 Boiler burns natural gas and fuel oil. Standard operating procedures are followed to minimize the potential impact of fuel oil burning.

5.2 Pollutant Emission Control

A NO_x CEMS is installed and continuously monitored to ensure compliance with the emission limits on No. 8 Boiler. In addition, standard operating procedures have been developed to minimize the potential emissions from fuel oil burning. These procedures constitute good operating practice for this unit.

5.3 Preventive Maintenance

Operations cleans the oil guns (including the tips) and replaces the gaskets before oil is burned.

5.4 Monitored Operating Variables

1. The NOx CEMS monitors and records data continuously.

2. The No. 8 boiler operator monitors the following variables:

   - Oil temperature
   - Air flow
   - CO concentration
   - Steam flow
   - Fuel usage (natural gas and/or fuel oil)

5.5 Corrective Actions for Startup, Shutdown and Malfunction Abatement

1. Startup of oil burning

   - Raise oil temperature (210 F)
   - Clean oil guns
   - Reduce gas firing to a minimum
   - Operate at reduced oil firing rate until stable combustion conditions exist and all oil guns are in the boiler
   - Check stack for visible emissions

2. High CO or smoke

- Check furnace conditions and adjust as necessary
- Check oil temperature (210 F) and raise as necessary
- Inspect the boiler and clean any oil guns that are not burning properly
- Ensure proper air flow

6. WOOD RESIDUE SURGE BIN

6.1 Introduction

Wood residue is pneumatically transferred to the No. 9 boiler. Prior to entering the surge bin and being metered onto the boiler grate with rotary screws, the wood residue is treated in a wood residue surge bin cyclone to control particulate emissions.

6.2 Pollutant Emission Control

The wood residue surge bin cyclone is visually inspected weekly to ensure proper control of air emissions is achieved. Corrective actions are taken when necessary.

6.3 Preventive Maintenance

1. The wood residue surge bin is visually inspected weekly by operations for proper operation and repairs are made as necessary.

2. The wood residue surge bin is inspected regularly by maintenance and repairs are made as necessary. See the Title V I&M Plan for more details.

6.4 Monitored Operating Variables

Operations performs weekly visual inspections on the cyclone.

6.5 Corrective Actions for Startup, Shutdown or Malfunction Abatement

1. Cyclone pluggage

    - Stop bark burning and begin firing gas
    - Clean and, if necessary, repair the cyclone

2. Hole in cyclone

    - Stop bark burning and begin firing gas
    - Clean and, if necessary, repair the cyclone

7. NO. 9 BOILER

7.1 Introduction

The No. 9 Boiler is a Babcock & Wilcox boiler rated for 250,000 pounds of steam per hour (approximately 360 million BTU per hour heat input) that provides steam for mill processes and steam turbine-generator sets for producing electricity. No. 9 Boiler burns primarily wood residue, but may also burn natural gas and paper cores. No. 9 Boiler uses two wet scrubbers to control particulate emissions and opacity from bark burning and is subject to 40 CFR 64 CAM. Please see the CAM Plan for more details.

7.2 Pollutant Emission Control

Flue gases from the No. 9 boiler are pulled through the firebox by an induced draft fan. On the discharge side of the fan the gases are split into two streams, each of which is treated with a wet scrubber. Water is used as the scrubbing media to remove particulates from the flue gases. Each scrubber uses a high capacity "bull" nozzle followed by a series of inlet nozzles to control entrained particulate matter.

Two sources of back up water are available in the event of an emergency. The main secondary water source is activated automatically if high flue gas temperature or low recirculation water is detected. If this main backup system does not function properly, a spare pump is available for supplying water to the scrubbers.

7.3 Preventative Maintenance

1. Operations performs the following every shift. Any problems or abnormalities are investigated, corrected, and, if necessary, reported to a supervisor. Significant abnormalities are recorded on the operator's log sheet.

    - Ensure primary water supply pump is running
    - Check primary water supply pump for leaks
    - Check the supply pump for the main backup water source and, if it is operating, investigate the reason why (normally not running)
    - Recirculation pumps should be running
    - Check recirculation pumps for leaks
    - Overflow pots at bottom of scrubber should have adequate flow to ensure proper operation
    - Water line to bull nozzles should feel cool to touch
    - Adequate pressure on wall nozzles should be indicated by the local pressure gauges

2. Operations performs a weekly visual inspection of the scrubber to ensure it is operating properly. Repairs are made as necessary.

3. The wood residue surge bin is inspected regularly by maintenance and repairs are made as necessary. See the Title V I&M Plan for more details.

7.4 Monitored Operating Variables

Scrubber flow rate and differential pressure are monitored continuously and alarms are triggered when set parameters are exceeded. In addition, the operator monitors the following variables on the No. 9 Boiler system to ensure compliance. Please see the CAM Plan for more details.

- Scrubber pump on
- Scrubber high-low level
- Primary water supply pump failure
- Backup water availability
- Back-up water on
- Back-up water failure
- Stack temperature
- Spare recirculation pump on

7.5 Corrective Actions for Startup, Shutdown and Malfunction Abatement

1. Startup or upset during startup

    - Startup on natural gas
    - Ensure the scrubber is operating properly before burning any bark
    - If an upset occurs, stop bark burning and burn only gas until the problem can be identified and corrected

2. Shutdown or upset during shutdown

    - Ensure scrubber is operating properly until bark burning stops
    - If an upset occurs pull bark fuel immediately

3. Plugged scrubber

    - Stop bark burning and begin firing gas
    - Open atmospheric damper and close scrubber damper to bypass scrubber
    - Take scrubbers off-line and perform necessary maintenance

4. Plugged or sheared nozzles

    - Stop bark burning and begin firing gas
    - Open atmospheric damper and close scrubber damper to bypass the scrubber
    - Take scrubbers off-line and repair nozzle(s)

5. Water recirculation pump failure

   - Start spare pump
   - Repair failed pump

6. Failure of primary water supply pump

   - Ensure that backup water is being supplied to scrubber
   - Start up spare pump if necessary
   - Repair primary water supply pump

8. NO. 11 BOILER

8.1 Introduction

The No. 11 Boiler is an ABB Combustion Engineering combination fuel boiler rated for 750,000 pounds of steam per hour (approximately 1040 million BTU per hour heat input) that provides steam for mill processes and steam turbine-generator sets for producing electricity. The No. 11 Boiler burns natural gas and pulverized coal from four tangentially located windboxes. The boiler also burns wood residue, paper mill sludge and tire-derived fuel (TDF) from a traveling grate located at the bottom of the unit. An electrostatic precipitator is used to treat flue gases from the No. 11 boiler to control particulate emissions. NOx emissions are controlled through proper combustion. An opacity COMS and a NOx CEMS are used as performance indicators. No. 11 Boiler is subject to 40 CFR 64 CAM. Please see the CAM Plan for more details.

8.2 Pollutant Emission Control

Particulate and opacity emissions are controlled with the ESP. The precipitator on the No. 11 boiler is divided into identical east and west cells. Each cell has three fields. Each field utilizes a TR set which is regulated by controls located in an air conditioned motor control center or MCC room.

An induced draft (ID) fan is used to pull the flue gases through the boiler. Downstream of this fan the flue gases split into two separate streams before entering the precipitator. These two streams are recombined after they exit the precipitator and are exhausted through a common stack.

Combustion control is used to control NOx emissions.

8.3 Preventative Maintenance

8.3.1 Electrostatic Precipitator

1. Operations inspects the following items every shift. Any abnormalities, problems or concerns are investigated and further actions are taken as necessary. Significant events are recorded on the operator's log sheet and, if necessary, reported to supervisory personnel.

    - All lights on the control panels should indicate that the T-R sets are on
    - Currents and voltages on meters in MCC room should be similar to previous readings and significant fluctuations should be reported
    - Walk past rapper drives and listen for sound of hammers hitting frame (listen for uniformity in sound and duration of rapper cycles)
    - Inspect T-R sets for leaking coolant
    - Shafts on screw conveyors should be rotating smoothly
    - Drag conveyors should be working properly

- Check level of ash in hoppers by inserting a rod
- Remove caps on ports at bottom of hoppers (ash should escape ports in a sudden discharge when system is functioning properly)
- Filters for heater/blower fan are inspected and changed as necessary
- Fans for heater/blower units should be running and belts and motors functioning properly
- Check silo level indicator
- Air conditioning should be on in T-R control room

2. Operations performs a weekly visual inspection of the ESP to ensure it is operating properly. Repairs are made as necessary.

3. During large outages, which typically occur annually, all the internal parts of the precipitator are thoroughly inspected by supervisory personnel and an outside service specialist. Maintenance is performed as needed. Procedures performed during such outages include those listed below. Key findings from each large outage are documented in a report by the outside service specialist and maintained on file for at least 2 years. Please see the Title V I&M Plan for more details.

   - Remove fly ash buildup in all parts of precipitator
   - Inspect and clean or replace bushings
   - Inspect and clean or replace insulators
   - Inspect and clean T-R control sets
   - Replace faulty elements and controls on heater/blower units
   - Replace all filters and fans belts on blower/heater units
   - Clean and inspect rapper drive control cabinets
   - Repair rappers if operating poorly
   - Adjust rapping frequencies for optimum performance
   - Replace gear oil for DE and collection plate rapper drives
   - Repair leaks in precipitator shell
   - Adjust spacing between discharge electrode wires and collection plates
   - Relocate collection plate spacer frames
   - Inspect ductwork
   - Inspect and repair all conveyors
   - Clean and lubricate access door components

8.4 Monitored Operating Variables

8.4.1 Electrostatic Precipitator

1. Opacity is monitored continuously and alarms are triggered to help ensure compliance with the 20% 6-minute opacity limit.

2. The No. 11 boiler operator monitors alarms that allow detection of the following problems:

    - T-R failure
    - Rapper failure
    - Ash hopper high level alarm
    - Heater/blower failure
    - Conveyor failure
    - Rotary screw failure

8.4.2 NOx Combustion Control

The No. 11 operator uses a NOx CEMS to continuously monitor NOx emissions from No. 11 Boiler.

8.4.3 Fugitive Dust Control

Fugitive dust control for fuel handling is monitored as described in the Fugitive Dust Control Plan.

8.5 Corrective Actions for Startup, Shutdown and Malfunction Abatement

8.5.1 Electrostatic Precipitator

The following corrective actions are taken to control particulate emissions during a startup, shutdown, or malfunction of the electrostatic precipitator:

1. During startup ensure that the precipitator is operating properly before firing coal, woodwaste, sludge, or TDF in the boiler.

2. During shutdown ensure that the precipitator is operating until coal, woodwaste, sludge, and TDF burning has stopped.

3. When opacity exceeds 10% on a 6 minute average, the No. 11 boiler operator takes the following actions, as necessary, to reduce opacity. These are usually implemented in the order presented below:

    - Ensure all T-R sets are operating
    - Adjust T-R sets by increasing DE wire voltages until sparking is detected or until the current limit is reached
    - Lower over fire air flow
    - Lower oxygen supplied to furnace
    - Reduce coal burning rate
    - Reduce woodwaste burning rate

4. If the No. 11 boiler operator fails to control opacity using the above procedures or if a significant reduction in coal or woodwaste burning rate is required for opacity control, the potential problems listed below are investigated:

   - Grounding of electrodes
   - Drag conveyor failure
   - Screw conveyor failure
   - Buss support insulator failure
   - Rapper failure (ensure all rappers are turning in correct sequence)
   - T-R set failure
   - T-R controller failure

   The last 3 problems listed above can usually be corrected on-line. The first 4 require entry into one side of the precipitator. Under these circumstances repairs are accomplished as follows.

   - Reduce coal burning rate until 6-minute opacity is below 20% and, if necessary, reduce woodwaste burning also
   - Supply natural gas to furnace to maintain heat input to boiler
   - Isolate affected side of precipitator
   - Shut down heaters on affected side and open access doors to facilitate cooling
   - Perform necessary maintenance

   In the event that high opacity (> 20%, 6-minute average) persists, only natural gas will be used as a fuel. Alternatively, the boiler will be shut down to repair the precipitator.

8.5.2 NOx Combustion Control

The following actions are taken as necessary.

1. The second assistant operator opens the NOx dampers (fourth floor).

2. The No. 11 boiler operator increases the windbox to furnace differential pressure.

8.5.3 Fugitive Dust Control

Preventive measures and corrective actions are described in the Fugitive Dust Control Plan.

9. COAL SILOS

9.1 Introduction

There are three coal silos for No. 11 Boiler. When the coal silos are filled with coal, fugitive dust emissions can occur. To control these emissions a baghouse has been installed on each silo. When a coal silo is being filled the appropriate baghouse is operational.

9.2 Pollutant Emission Control

Bag filters are used to control fugitive coal dust emissions from each of three coal silos for the No. 11 boiler. Operations performs visible inspections of the coal silo systems weekly to ensure they are operating correctly. Repairs are made as necessary.

9.3 Preventive Maintenance

1. Operations visually inspects the outlet pipe from the coal silos during daylight hours on a weekly basis to ensure there are no emissions. Repairs are made if visual emissions are observed.

2. The utilities maintenance department inspects the coal silo baghouses regularly and repairs are made as necessary. See the Title V I&M Plan for details.

9.4 Monitored Operating Variables

The second assistant operator periodically inspects each filter during filling of the coal silo and inspects the system weekly. If visible emissions are observed, repairs are made as necessary.

9.5 Corrective Actions for Startup, Shutdown or Malfunction Abatement

Baghouse filter malfunction

- Stop using the filter and, if necessary, load a silo which has an operable filter
- Repair the filter system

10. ASH SILOS

10.1 Introduction

There are two ash silos for No. 11 Boiler. The No. 1 ash silo collects ash from the multiclone system and the No. 2 ash silo collects fly ash from the ESP. A filter is used to control fugitive dust emissions from the No. 1 ash silo and a baghouse is used to control fugitive dust emissions from No. 2 ash silo.

10.2 Pollutant Emission Control

A filter is used to control fugitive dust emissions from the No. 1 ash silo and a baghouse is used to control fugitive dust emissions from the No. 2 ash silo. Operations performs visible inspections of the ash silo systems weekly to ensure they are operating correctly. Repairs are made as necessary.

10.3 Preventive Maintenance

1. Operations visually inspects the ash silos during daylight hours on a weekly basis to ensure there are no emissions. Repairs are made if visual emissions are observed.

2. The utilities maintenance department inspects the ash silo baghouse regularly and repairs are made as necessary. See the Title V I&M Plan for details.

10.4 Monitored Operating Variables

1. Operations visually inspects the ash silos during daylight hours on a weekly basis to ensure there are no emissions. Repairs are made if visual emissions are observed.

2. The ash handlers periodically inspect the dust filter during filling of the No. 1 ash silo. Repairs are made as necessary

3. The ash handlers ensure no ash is coming out of the conveyors or silo.

10.5 Corrective Actions for Startup, Shutdown or Malfunction Abatement

1. Filter malfunction

    - Repair filter system

2. Lack of negative draft

    - Ensure suction line is open to induced draft fan to maintain a negative draft

11. NO. 11 ASH UNLOADING

11.1 Introduction

Ash from the No. 1 and No. 2 ash silos are transferred into dump trucks for disposal in the on-site landfill via pugmills. Particulate emissions from No. 11 boiler ash unloading are controlled by wetting the ash prior to loading it into the dump trucks.

11.2 Pollutant Emission Control

Fugitive particulate emissions can be created when ash from the boiler economizer and electrostatic precipitator is unloaded from the ash silos into dump trucks for disposal. The ash is sprayed with water prior to unloading to minimize these particulate emissions.

11.3 Preventive Maintenance

1. The ash handlers inspect the ash mixers and rotary feeders once each day.

2. The utilities maintenance department performs regular inspections of the ash unloading system and repairs are made as needed. See the Title V I&M Plan for details.

10.3 Monitored Operating Variables

The ash handlers perform a visual inspection each time a truck is filled with ash to ensure adequate dust control.

10.4 Corrective Actions for Startup, Shutdown or Malfunction Abatement

Excessive dusting during truck loading

- Check mixer water pressure and increase as necessary
- Check rotary feeder speed and slow as necessary
- If dusting persists stop truck loading and clean mixer paddles
- If dusting still persists stop truck loading and initiate corrective maintenance
- Stop unloading operations until effective corrective action has been taken

APPENDIX A

CRITICAL SPARE PARTS

No. 9 Boiler

Ready spare circulation pump
2 ready backup scrubber water supply pumps
Gas backup for boiler in the event of a scrubber failure
Scrubber Nozzles

No. 10 Recovery Furnace

Description	Old Stores # or Location	New Store #
T-R sets	1lth floor No. 10 furnace	
T-R controls wire	EPIC-38083522	00195597
wire rappers	16602657	00184894 yellow
plate rappers	16602600	0184893 red
precipitator wires	6th floor No. 10 furnace	

Smelt Dissolving Tank

Description	Old Stores # or Location	New Store #
fan rotor, shaft, & pulleys	4th floor No. 10 furnace	
fan bearings	11250551	00002635
fan belts	14841107	00003607

No. 11 Boiler Precipitator

Description	Old Stores # or Location	New Store #
T-R sets	6th floor of precipitator	
T-R controls	EPIC-38083522	00195597
wire rappers	See Attached Sheet	
plate rappers	See Attached Sheet	

Ash Silo

Description	Old Stores # or Location	New Store #
filter bags	16140530	00184617
loading controls		
timer	29500157	00191057
solenoid	93709980	00229441

No. 11 Wire Rappers

Old	New	Description
16600581	00184866	support insulator
16600568	00184865	insulator gasket
16600371	00184853	stand off bracket
16606450	00184897	shaft insulator
16600615	00184868	motor shaft gasket
79560202	00219186	gear reducer, rapper shaft drive
16601060	00184886	spacer, hammer link
16602517	00184892	hammer assembly
16600428	00184858	bushing, hammer
16600430	00184859	bushing, rapper shaft support
39200524	00199540	drive motor

No. 11 Plate Rappers

Old	New	Description
16606251	00184896	packing ring, rapper shaft
09202688	00182181	bearing, rapper shaft
23020200	00187303	gear Coupling, rapper drive
16606554	00184899	spacer, hammer link
16602505	00184891	hammer assembly
16600417	00184857	bushing, hammer
16600265	00184850	bearing, rapper shaft
79560155	00219185	gear reducer, rapper shaft drive
39200465		drive motor

STARCH UNLOADING

Malfunction Abatement Plan

Updated June 2020

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1. INTRODUCTION

The purpose of this document is to identify how Verso Escanaba LLC (VE) will minimize pollutant emissions from starch unloading activities during periods of startup, shutdown, and malfunction. This document provides a framework for preventing pollutant emissions through good operating practices while also identifying quick corrective actions when required. In many cases the required corrective action will depend on the type of incident that has occurred. For this reason corrective actions are not necessarily intended to be implemented in the order they are listed. This document will be updated periodically to incorporate any corrective actions that are not included in the plan at this time. Appendix A contains a list of critical spare parts that are maintained in inventory at this facility.

2. El STARCH UNLOADING

2.1 Introduction

Starch is used in coating, and is also added to the wet end of the E1 paper machine. The E1 system has four baghouses: the No. 1 starch silo baghouse; the No. 2 starch silo baghouse; the No. 1 and No. 2 starch day bins baghouse; and the No. 1 and No. 2 starch wet out tanks baghouse. The two starch silos each have their own baghouse while the two day bins and the two wet out tanks share common baghouses. A truck or railcar can be unloaded directly into the day bins if required; otherwise the starch is normally unloaded into the silos. Particulate emissions from starch unloading are controlled with these four baghouse systems.

2.2 Pollutant Emission Control

Particulate emissions are controlled with the baghouses. The baghouses are inspected regularly to ensure proper collection of particulate emissions.

2.3 Preventive Maintenance

The following preventive maintenance is performed:

1. A visible emissions checklist is completed during daylight hours weekly by operations. Any abnormalities are recorded and corrective actions are taken as needed.

2. Routine inspections are performed by maintenance and corrective actions are taken as needed. See the Title V I&M Plan for details.

2.4 Monitored Operating Variables

The operator responds to the following alarms:

- Chain failure on rotary feeder
- High/Low differential pressure across the vacuum filter

2.5 Corrective Actions for Startup, Shutdown or Malfunction Abatement

1. High differential pressure

   - Cut back on exhaust fan damper
   - Check the rotary valve and repair if necessary
   - Clean any dust from plenum chamber, inside, and outside of bags
   - Clean discharge system and check for capacity in silo
   - Unplug starch line from receiver to silo
   - Check for a defective timer and replace if necessary

2. Loss of compressed air

   - Tighten lose fittings
   - Clean debris from diaphragm valve and solenoid plunger
   - Check for electrical short
   - Check for frozen air line

3. Airflow volume too low

   - Check to see that the fan rotation is in the right direction
   - Ensure fan belts are not slipping
   - Repair any leaks in piping, rotary valve, and collector flanges
   - Clean any dust from plenum chamber and outside of bags

4. Starch dust puffing

   - Inspect bag connections and re-tighten bag clamps
   - Inspect for worn or damaged bags and change as necessary
   - Clean plenum before installing new bag set

5. Timer does not operate

   - Check wiring on timer
   - Check for a short circuit
   - Replace blown fuses
   - Replace defective timer or run the baghouse continuously

3. E3 STARCH UNLOADING

3.1 Introduction

Starch is used in coating, and is also added to the wet end of the E3 paper machine. The E3 system has three baghouses: the No. 1 starch (Pearl) silo baghouse; the No. 2 starch (Pearl) silo baghouse; and the No. 3 starch (Cato) silo baghouse. Each of the starch silos has its own baghouse. Particulate emissions from starch unloading are controlled with these three baghouse systems.

3.2 Pollutant Emission Control

Particulate emissions are controlled with the baghouses. The baghouses are inspected regularly to ensure proper collection of particulate emissions.

3.3 Preventive Maintenance

The following preventive maintenance is performed:

1. A visible emissions checklist is completed during daylight hours weekly by operations. Any abnormalities are recorded and corrective actions are taken as needed.

2. Routine inspections are performed by maintenance and corrective actions are taken as needed. See the Title V I&M Plan for details.

3.4 Monitored Operating Variables

1. The equipment tender monitors unit differential pressure on the baghouses. Low differential pressure indicates a rip or tear in the bags. High differential pressure indicates plugged bags and/or a plug in the starch transfer line.

2. The operator responds to the following alarm:

    - High/Low differential pressure across the vacuum filter

3.5 Corrective Actions for Startup, Shutdown or Malfunction Abatement

1. High differential pressure

   - Cut back on exhaust fan damper
   - Clean any dust from plenum chamber, inside, and outside of bags
   - Clean discharge system and check for capacity in silo
   - Unplug starch line from receiver to silo

2. Loss of compressed air

   - Tighten lose fittings
   - Clean debris from diaphragm valve and solenoid plunger
   - Check for electrical short
   - Check for frozen air line

3. Airflow volume too low

   - Check to see that the fan rotation is in the right direction
   - Ensure fan belts are not slipping
   - Repair any leaks in piping, rotary valve, and collector flanges
   - Clean any dust from plenum chamber and outside of bags

4. Starch dust puffing

   - Inspect bag connections and re-tighten bag clamps
   - Inspect for worn or damaged bags and change as necessary
   - Clean plenum before installing new bag set

5. Timer does not operate

   - Check wiring on timer
   - Check for a short circuit
   - Replace blown fuses
   - Replace defective timer or run the baghouse continuously

4. E4 STARCH UNLOADING

4.1 Introduction

Starch is used in coating, and is also added to the wet end of the E4 paper machine. The E4 system has two baghouses: the No. 1 starch (Pearl) silo baghouse; and the No. 2 starch (Pearl) silo baghouse. Each of the starch silos has its own baghouse. Particulate emissions from starch unloading are controlled with these two baghouse systems.

4.2 Pollutant Emission Control

Particulate emissions are controlled with the baghouses. The baghouses are inspected regularly to ensure proper collection of particulate emissions.

4.3 Preventive Maintenance

The following preventive maintenance is performed:

1. A visible emissions checklist is completed during daylight hours weekly by operations. Any abnormalities are recorded and corrective actions are taken as needed.

2. Routine inspections are performed by maintenance and corrective actions are taken as needed. See the Title V I&M Plan for details.

4.4 Monitored Operating Variables

1. Operations monitors puffing from all of the equipment during periods of unloading. Corrective actions are taken as needed.

2. A visible emissions checklist is completed during daylight hours weekly by operations. Any abnormalities are recorded and corrective actions are taken as needed.

4.5 Corrective Actions for Startup, Shutdown or Malfunction Abatement

1. Loss of compressed air

    - Tighten lose fittings
    - Clean debris from diaphragm valve and solenoid plunger
    - Check for electrical short
    - Check for frozen air line

2. Airflow volume too low

    - Check to see that the fan rotation is in the right direction
    - Ensure fan belts are not slipping
    - Repair any leaks in piping, rotary valve, and collector flanges
    - Clean any dust from plenum chamber and outside of bags

3. Starch dust puffing

    - Inspect bag connections and re-tighten bag clamps
    - Inspect for worn or damaged bags and change as necessary
    - Clean plenum before installing new bag set

4. Timer does not operate

    - Check wiring on timer
    - Check for a short circuit
    - Replace blown fuses
    - Replace defective timer or run the baghouse continuously

APPENDIX A

CRITICAL SPARE PARTS

All Baghouses	Item #
Magnehelic pressure gauge	00079837
Hose #64104 for clamps	00567138
Filter bag 6"x72'.' dacron	00567117
Filter cage 5 ½" galvanized steel	00567130
Air filter for pressure gauge	00567146
1" diaphragm valve	00567181
Sealing gasket	00567182
Timer board	00191080
Solenoid valve	00567180

Permit to Install (PTI) 184-16

STATE OF MICHIGAN

DEPARTMENT OF ENVIRONMENTAL QUALITY

LANSING

RICK SNYDER
GOVERNOR

C. HEIDI GRETHER
DIRECTOR

May 2, 2017

Mr. Matt Archambeau, Mill Manager
Verso Corporation
7100 County Road 426
Escanaba, Michigan 49829

Dear Mr. Archambeau:

This letter is in reference to your Permit to Install application for the modification to the No. 10 Recovery Furnace (State Registration Number A0884) located at 7100 County Road 426, Escanaba, Michigan. This application, identified as No. 184-16, has been evaluated and approved by the Air Quality Division (AQD), pursuant to the delegation of authority from the Michigan Department of Environmental Quality (DEQ).

This approval is based upon and subject to compliance with all administrative rules promulgated pursuant to Part 55, Air Pollution Control, of the Natural Resources and Environmental Protection Act, 1994 PA 451, as amended (Act 451), and conditions stipulated in the enclosed supplement. Please review these conditions thoroughly so that you may take the actions necessary to ensure compliance with all of these conditions.

The equipment covered by this permit is also subject to the requirements of the Renewable Operating Permit Program. Submittal of the M-001 and C-001 forms may be required prior to commencing operation. Additional information is included in the M-001 form instructions. The forms and instructions are available on the Internet, or they can be obtained by contacting the Upper Peninsula District Office at 906-228-4853. The AQD permit web page is located at http://www.michigan.gov/air.

A change that is subject to Rule 215 subrules (1), (2), or (3) of Act 451 requires the submittal of the forms to the appropriate AQD District Office. If a change is made pursuant to Rule 216, please submit the required forms to the Cadillac District Office at the address provided in the M-001 form instructions.

To help us improve the service we provide our customers, we encourage you to complete a *Permit to Install Customer Service Survey* on the following Web page:

https://www.surveymonkey.com/s/aqdptics

Please contact me if you have any questions regarding this permit.

Sincerely,

Melissa Byrnes

Melissa Byrnes, Environmental Engineer
Thermal/Chemical Process Unit
Permit Section, Air Quality Division
517-284-6790
byrnesm@michigan.gov

Enclosures
cc/enc: Mr. Ed Lancaster, DEQ

Byrnes

MICHIGAN DEPARTMENT OF ENVIRONMENTAL QUALITY - AIR QUALITY DIVISION

PERMIT TO INSTALL APPLICATION

DEQ

For authority to install, construct, reconstruct, relocate, or modify process, fuel-burning or refuse burning equipment and/or control equipment. Permits to install are required by administrative rules pursuant to Section 5505 of 1994 PA 451, as amended.

FOR DEQ USE
APPLICATION NUMBER
184-16

Please type or print clearly. The "Application Instructions" and "Information Required for an Administratively Complete Permit to Install Application" are available on the Air Quality Division (AQD) Permit Web Page at http://www.deq.state.mi.us/aps. Please call the AQD at 517-284-6804 if you have not been contacted within 15 days of your application submittal.

RECEIVED
OCT 28 2016
AIR QUALITY DIV.

1. FACILITY CODES: State Registration Number (SRN) and North American Industry Classification System (NAICS)
SRN: A 0 8 8 4 NAICS: 3 2 2 1 2 1

2. APPLICANT NAME: (Business License Name of Corporation, Partnership, Individual Owner, Government Agency)
Verso Corporation

3. APPLICANT ADDRESS: (Number and Street)
7100 County Road 426
MAIL CODE:

CITY: (City, Village or Township)	STATE:	ZIP CODE:	COUNTY:
Escanaba	MI	49829	Delta

4. EQUIPMENT OR PROCESS LOCATION: (Number and Street – if different than Item 3)
N/A

CITY: (City, Village or Township)	ZIP CODE:	COUNTY:

5. GENERAL NATURE OF BUSINESS:
Pulp and Paper Manufacturing

6. EQUIPMENT OR PROCESS DESCRIPTION: (A Description MUST Be Provided Here. Include Emission Unit IDs. Attach additional sheets if necessary; number and date each page of the submittal.)

Verso Corporation (Verso) has prepared this permit-to-install (PTI) application to modify the No. 10 Recovery Furnace (Emissions Unit No. EURF15) at the Escanaba, MI mill (Escanaba Mill or Mill). The existing air system is undersized for the No. 10 Recovery Furnace. The existing air system is also tangentially fired, causing a rotation of the fireball in the recovery furnace which increases corrosion and membrane cracking due to the extremely high temperatures. The existing air system consists of primary and secondary air fans, which supply the four levels of air: primary, secondary, tertiary, and quaternary. The air system upgrade (ASU) project will eliminate the existing tertiary and quaternary side wall air ports. New air nozzles will be installed on the front and rear walls of the No. 10 Recovery Furnace. Air will be supplied by a new tertiary air fan, in addition to the existing primary and secondary air fans. Some of the air nozzles will be converted for delivering BLS. This conversion will help control the char bed to improve the operation of the No. 10 Recovery Furnace. The ASU will lead to a greater recovery furnace efficiency, which will reduce fuel oil usage, reduce corrosion and cracking in the furnace, and reduce furnace downtime.

7. REASON FOR APPLICATION: (Check all that apply.)
- ☐ INSTALLATION / CONSTRUCTION OF NEW EQUIPMENT OR PROCESS
- ☒ RECONSTRUCTION / MODIFICATION / RELOCATION OF EXISTING EQUIPMENT OR PROCESS – **DATE INSTALLED:** 1972/1984 (modified)
- ☐ OTHER – DESCRIBE

8. IF THE EQUIPMENT OR PROCESS THAT WILL BE COVERED BY THIS PERMIT TO INSTALL (PTI) IS CURRENTLY COVERED BY ANY ACTIVE PERMITS, LIST THE PTI NUMBER(S): PTI No. 127-11D

9. DOES THIS FACILITY HAVE AN EXISTING RENEWABLE OPERATING PERMIT (ROP)? ☐ NOT APPLICABLE ☐ PENDING APPLICATION ☒ YES
PENDING APPLICATION OR ROP NUMBER: MI-ROP-A0884-2016

10. AUTHORIZED EMPLOYEE:	TITLE:	PHONE NUMBER: (Include Area Code)
Matt Archambeau	Mill Manager	(906) 233-2600
SIGNATURE: [signature]	DATE: 10/28/16	E-MAIL ADDRESS: Matt.Archambeau@versoco.com

11. CONTACT: (If different than Authorized Employee. The person to contact with questions regarding this application)	PHONE NUMBER: (Include Area Code)
Bill Racine	(906) 233-2772
CONTACT AFFILIATION: Environmental Manager	E-MAIL ADDRESS: William.Racine@versoco.com

12. IS THE CONTACT PERSON AUTHORIZED TO NEGOTIATE THE TERMS AND CONDITIONS OF THE PERMIT TO INSTALL? ☒ YES ☐ NO

FOR DEQ USE ONLY - DO NOT WRITE BELOW

DATE OF RECEIPT OF ALL INFORMATION REQUIRED BY RULE 203: 3/8/17	
DATE PERMIT TO INSTALL APPROVED: 4/13/17	SIGNATURE: Annette Switzer
DATE APPLICATION / PTI VOIDED:	SIGNATURE:
DATE APPLICATION DENIED:	SIGNATURE:

A PERMIT CERTIFICATE WILL BE ISSUED UPON APPROVAL OF A PERMIT TO INSTALL

EQP 5615E (Rev. 09/2015)

MICHIGAN DEPARTMENT OF ENVIRONMENTAL QUALITY
AIR QUALITY DIVISION

April 13, 2017

PERMIT TO INSTALL
184-16

ISSUED TO
Verso Escanaba, LLC

LOCATED AT
7100 County Road 426
Escanaba, Michigan

IN THE COUNTY OF
Delta

STATE REGISTRATION NUMBER
A0884

The Air Quality Division has approved this Permit to Install, pursuant to the delegation of authority from the Michigan Department of Environmental Quality. This permit is hereby issued in accordance with and subject to Section 5505(1) of Article II, Chapter I, Part 55, Air Pollution Control, of the Natural Resources and Environmental Protection Act, 1994 PA 451, as amended. Pursuant to Air Pollution Control Rule 336.1201(1), this permit constitutes the permittee's authority to install the identified emission unit(s) in accordance with all administrative rules of the Department and the attached conditions. Operation of the emission unit(s) identified in this Permit to Install is allowed pursuant to Rule 336.1201(6).

DATE OF RECEIPT OF ALL INFORMATION REQUIRED BY RULE 203: **March 8, 2017**	
DATE PERMIT TO INSTALL APPROVED: **April 13, 2017**	SIGNATURE: Annette Switzer
DATE PERMIT VOIDED:	SIGNATURE:
DATE PERMIT REVOKED:	SIGNATURE:

PERMIT TO INSTALL

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Common Abbreviations / Acronyms

Common Acronyms		Pollutant / Measurement Abbreviations	
AQD	Air Quality Division	acfm	Actual cubic feet per minute
BACT	Best Available Control Technology	BTU	British Thermal Unit
CAA	Clean Air Act	°C	Degrees Celsius
CAM	Compliance Assurance Monitoring	CO	Carbon Monoxide
CEM	Continuous Emission Monitoring	CO_2e	Carbon Dioxide Equivalent
CFR	Code of Federal Regulations	dscf	Dry standard cubic foot
COM	Continuous Opacity Monitoring	dscm	Dry standard cubic meter
Department/ department	Michigan Department of Environmental Quality	°F	Degrees Fahrenheit
		gr	Grains
EU	Emission Unit	HAP	Hazardous Air Pollutant
FG	Flexible Group	Hg	Mercury
GACS	Gallons of Applied Coating Solids	hr	Hour
GC	General Condition	HP	Horsepower
GHGs	Greenhouse Gases	H_2S	Hydrogen Sulfide
HVLP	High Volume Low Pressure*	kW	Kilowatt
ID	Identification	lb	Pound
IRSL	Initial Risk Screening Level	m	Meter
ITSL	Initial Threshold Screening Level	mg	Milligram
LAER	Lowest Achievable Emission Rate	mm	Millimeter
MACT	Maximum Achievable Control Technology	MM	Million
MAERS	Michigan Air Emissions Reporting System	MW	Megawatts
MAP	Malfunction Abatement Plan	NMOC	Non-methane Organic Compounds
MDEQ	Michigan Department of Environmental Quality	NO_x	Oxides of Nitrogen
		ng	Nanogram
MSDS	Material Safety Data Sheet	PM	Particulate Matter
NA	Not Applicable	PM10	Particulate Matter equal to or less than 10 microns in diameter
NAAQS	National Ambient Air Quality Standards		
NESHAP	National Emission Standard for Hazardous Air Pollutants	PM2.5	Particulate Matter equal to or less than 2.5 microns in diameter
NSPS	New Source Performance Standards	pph	Pounds per hour
NSR	New Source Review	ppm	Parts per million
PS	Performance Specification	ppmv	Parts per million by volume
PSD	Prevention of Significant Deterioration	ppmw	Parts per million by weight
PTE	Permanent Total Enclosure	psia	Pounds per square inch absolute
PTI	Permit to Install	psig	Pounds per square inch gauge
RACT	Reasonable Available Control Technology	scf	Standard cubic feet
ROP	Renewable Operating Permit	sec	Seconds
SC	Special Condition	SO_2	Sulfur Dioxide
SCR	Selective Catalytic Reduction	TAC	Toxic Air Contaminant
SNCR	Selective Non-Catalytic Reduction	Temp	Temperature
SRN	State Registration Number	THC	Total Hydrocarbons
TEQ	Toxicity Equivalence Quotient	tpy	Tons per year
USEPA/EPA	United States Environmental Protection Agency	µg	Microgram
		µm	Micrometer or Micron
VE	Visible Emissions	VOC	Volatile Organic Compounds
		yr	Year

*For HVLP applicators, the pressure measured at the gun air cap shall not exceed 10 psig.

GENERAL CONDITIONS

1. The process or process equipment covered by this permit shall not be reconstructed, relocated, or modified, unless a Permit to Install authorizing such action is issued by the Department, except to the extent such action is exempt from the Permit to Install requirements by any applicable rule. **(R 336.1201(1))**

2. If the installation, construction, reconstruction, relocation, or modification of the equipment for which this permit has been approved has not commenced within 18 months, or has been interrupted for 18 months, this permit shall become void unless otherwise authorized by the Department. Furthermore, the permittee or the designated authorized agent shall notify the Department via the Supervisor, Permit Section, Air Quality Division, Michigan Department of Environmental Quality, P.O. Box 30260, Lansing, Michigan 48909-7760, if it is decided not to pursue the installation, construction, reconstruction, relocation, or modification of the equipment allowed by this Permit to Install. **(R 336.1201(4))**

3. If this Permit to Install is issued for a process or process equipment located at a stationary source that is not subject to the Renewable Operating Permit program requirements pursuant to R 336.1210, operation of the process or process equipment is allowed by this permit if the equipment performs in accordance with the terms and conditions of this Permit to Install. **(R 336.1201(6)(b))**

4. The Department may, after notice and opportunity for a hearing, revoke this Permit to Install if evidence indicates the process or process equipment is not performing in accordance with the terms and conditions of this permit or is violating the Department's rules or the Clean Air Act. **(R 336.1201(8), Section 5510 of Act 451, PA 1994)**

5. The terms and conditions of this Permit to Install shall apply to any person or legal entity that now or hereafter owns or operates the process or process equipment at the location authorized by this Permit to Install. If the new owner or operator submits a written request to the Department pursuant to R 336.1219 and the Department approves the request, this permit will be amended to reflect the change of ownership or operational control. The request must include all of the information required by subrules (1)(a), (b), and (c) of R 336.1219 and shall be sent to the District Supervisor, Air Quality Division, Michigan Department of Environmental Quality. **(R 336.1219)**

6. Operation of this equipment shall not result in the emission of an air contaminant which causes injurious effects to human health or safety, animal life, plant life of significant economic value, or property, or which causes unreasonable interference with the comfortable enjoyment of life and property. **(R 336.1901)**

7. The permittee shall provide notice of an abnormal condition, start-up, shutdown, or malfunction that results in emissions of a hazardous or toxic air pollutant which continue for more than one hour in excess of any applicable standard or limitation, or emissions of any air contaminant continuing for more than two hours in excess of an applicable standard or limitation, as required in Rule 912, to the Department. The notice shall be provided not later than two business days after start-up, shutdown, or discovery of the abnormal condition or malfunction. Written reports, if required, must be filed with the Department within 10 days after the start-up or shutdown occurred, within 10 days after the abnormal conditions or malfunction has been corrected, or within 30 days of discovery of the abnormal condition or malfunction, whichever is first. The written reports shall include all of the information required in Rule 912(5). **(R 336.1912)**

8. Approval of this permit does not exempt the permittee from complying with any future applicable requirements which may be promulgated under Part 55 of 1994 PA 451, as amended or the Federal Clean Air Act.

9. Approval of this permit does not obviate the necessity of obtaining such permits or approvals from other units of government as required by law.

10. Operation of this equipment may be subject to other requirements of Part 55 of 1994 PA 451, as amended and the rules promulgated thereunder.

11. Except as provided in subrules (2) and (3) or unless the special conditions of the Permit to Install include an alternate opacity limit established pursuant to subrule (4) of R 336.1301, the permittee shall not cause or permit to be discharged into the outer air from a process or process equipment a visible emission of density greater than the most stringent of the following. The grading of visible emissions shall be determined in accordance with R 336.1303. **(R 336.1301)**
    a) A six-minute average of 20 percent opacity, except for one six-minute average per hour of not more than 27 percent opacity.
    b) A visible emission limit specified by an applicable federal new source performance standard.
    c) A visible emission limit specified as a condition of this Permit to Install.

12. Collected air contaminants shall be removed as necessary to maintain the equipment at the required operating efficiency. The collection and disposal of air contaminants shall be performed in a manner so as to minimize the introduction of contaminants to the outer air. Transport of collected air contaminants in Priority I and II areas requires the use of material handling methods specified in R 336.1370(2). **(R 336.1370)**

13. The Department may require the permittee to conduct acceptable performance tests, at the permittee's expense, in accordance with R 336.2001 and R 336.2003, under any of the conditions listed in R 336.2001. **(R 336.2001)**

SPECIAL CONDITIONS

EMISSION UNIT SUMMARY TABLE

The descriptions provided below are for informational purposes and do not constitute enforceable conditions.

Emission Unit ID	Emission Unit Description (Process Equipment & Control Devices)	Installation Date / Modification Date	Flexible Group ID
EU1SB14	#1 Chip Surge Bin - The Chip Surge Bins are part of the pneumatic transfer system from the chippers to the screening building. Emissions are controlled by a cyclone dust collector.	1972	FGRFASU
EU2SB14	#2 Chip Surge Bin - The Chip Surge Bins are part of the pneumatic transfer system from the chippers to the screening building. Emissions are controlled by a cyclone dust collector.	1972	FGRFASU
EUCS14	The Chip Thickness Screening System includes #1 Chip Reclaim Surge Bin, #2 Chip Reclaim Surge Bin, Air Density Separator #1A, Air Density Separator #1B, Air Density Separator #2A, Air Density Separator #2B. Emissions are controlled by two chip reclaim cyclones and four air density separator cyclones.	1989	FGRFASU
EU2PD40	The #2 Pulp Dryer System is comprised of a pulp makedown system and a pulp dryer. The pulp make down system consists of baled pulp storage and hydropulpers used for repulping baled pulp. Stock inputs to the blend chest include bleached hardwood or softwood pulp from the bleaching system as well as baled pulp. At the wet end, refined wood fiber is introduced as a dilute water solution. The press section consolidates the web and removes water. At the dry end, steam can dryer sections drive off much of the remaining water. Pulp is dried, baled, and stored. Baled pulp is used as a stock input for one of the paper machines, or may be sold as pulp.	1920	FGRFASU

Emission Unit ID	Emission Unit Description (Process Equipment & Control Devices)	Installation Date / Modification Date	Flexible Group ID
EUBB05 EUME05	The Evaporator System consists of equipment used to concentrate weak black liquor as a part of the chemical recovery process for kraft pulping liquor. Water and volatiles are driven from the liquor using six evaporator effects followed by concentrators. Most of the vapors are condensed using non-contact surface condensers and a vapor condensing system. LVHC noncondensable gases from the evaporator hotwell are collected and vented into a closed-vent system and incinerated in the Thermal Oxidizer or the Lime Kiln as a backup incineration device. Miscellaneous Evaporator System Devices consist of the black liquor storage tanks associated with the evaporator system. With the exception of the strong waste tank and the soap tank, fugitive breathing losses from these tanks are collected and incinerated in the #10 Recovery Furnace.	1972 / 1984 / 2009	FGRFASU
EUBB22 EUMT22 EUOT22	The Digester System consists of batch digesters, blow tanks, and a blowheat condensing system. Blow and relief gases from the digesters are condensed in the blowheat system which also serves to recover heat energy and turpentine. LVHC noncondensable gases from the blowheat condensing system are enclosed and vented into a closed-vent system and incinerated in a dedicated Thermal Oxidizer or the Lime Kiln as a backup incineration device. HVLC noncondensable gases from the digester domes and capping valves are mixed with HVLC noncondensable gases from the Brownstock System, Evaporator System, and Chemical Recovery Furnace System and used for combustion air for #10 Recovery Furnace. Digester Other Devices include the condensate accumulator tank, secondary blow heat condenser, and the secondary digester relief condenser. Miscellaneous Turpentine Handling Devices include the turpentine decanter and turpentine storage tank. Enclosures and a closed vent collection system route LVHC gases to the Thermal Oxidizer or the Lime Kiln as a backup for incineration.	1972 / 1984	FGRFASU

Emission Unit ID	Emission Unit Description (Process Equipment & Control Devices)	Installation Date / Modification Date	Flexible Group ID
EUBB33 EUMC33	Steam Stripping System NSPS Devices consist of the steam stripper column and reflux condenser. The Steam Stripping System is used to pre-treat kraft pulping process condensates regulated under the Standards for Kraft Pulping Process Condensates 40 CFR 63.446 (see EUCOND). Final condensate treatment is done at the Brownstock washers (see EUBB23). Enclosures and a closed vent collection system route LVHC gases to the Thermal Oxidizer or the Lime Kiln as a backup for incineration. Miscellaneous Condensate Stripping System Devices consist of the stripper column feed tank, condensate strainers and condensate heat exchangers. Enclosures and a closed vent collection system route LVHC gases to the Thermal Oxidizer or the Lime Kiln as a backup for incineration.	1972 / 1984	FGRFASU
EUOC33	The Thermal Oxidizer is a dedicated incineration device for LVHC noncondensable gases from the LVHC Gas Collection System (FGLVHC) and the Kraft Mill Subpart BB Systems (FGBBKRAFT). Emissions from the Thermal Oxidizer are controlled by a packed scrubber using soda ash or caustic soda scrubbing solution to control sulfur dioxide emissions.	1972 / 1996	FGRFASU
EUBB23	The Brownstock NSPS Devices include the knotters, brownstock washers and brownstock filtrate tanks. Brown pulp from the digester blow tanks is processed to remove knots and debris and to recover spent cooking chemicals. Washing is performed using countercurrent rotary vacuum drum washers. Water and evaporator condensate are used for washing. The washed pulp is screened, rinsed, and stored for bleaching. Weak black liquor from the filtrate chests is pumped to storage tanks in the Evaporator System (EUBB05) for further processing. Also, the Brownstock System is used for final treatment of kraft pulping process condensates regulated under the Standards for Kraft Pulping Process Condensates 40 CFR 63.446 (see Condensate Collection and Treatment System EUCOND). A closed vent gas collection system routes HVLC gases to the Recovery Furnace for incineration.	1972 / 1984	FGRFASU

Emission Unit ID	Emission Unit Description (Process Equipment & Control Devices)	Installation Date / Modification Date	Flexible Group ID
EURF15	The Chemical Recovery Furnace is used to regenerate chemicals used in wood pulping. The #10 Recovery Furnace (EURF15) produces steam for mill processes and steam turbine-generator sets for producing electricity. The #10 Recovery Furnace burns black liquor, natural gas, #6 fuel oil, and used oil. Also, the #10 Recovery Furnace receives gases from enclosures and closed-vent systems and is used to incinerate High Volume Low Concentration noncondensable gases from the Digester System, Brownstock System, Evaporator System, and Chemical Recovery Furnace System. Emissions are controlled by an electrostatic precipitator.	1972 / 1994 / Oct 2017	FGRFASU
EUST15	Smelt Dissolving Tank - Smelt from the recovery furnace is used to produce green liquor, a solution of sodium sulfide and sodium carbonate salts, when it is dissolved in water or weak wash in the Smelt Dissolving Tank. Emissions are controlled by a wet scrubber and mist eliminator.	1972 / 1994	FGRFASU
EUB25 EUED25 EUM25	The Bleaching System is used to whiten Brownstock pulp for papermaking. Bleaching is accomplished through the use of chemicals, bleaching towers, extraction towers, and washers. Chlorine dioxide is used for bleaching, and is manufactured on site. The Bleaching System has three emission units: Bleaching, including the chlorine dioxide generator plant (EUB25), Extraction Devices (EUED25), and Methanol Storage (EUM25). Off-gases from the chlorine dioxide generator and storage tanks are scrubbed with chilled water in the tail gas scrubber prior to being scrubbed in the Bleach Plant scrubber system.	1972 / 1996	FGRFASU
EULKI29	The Lime Kiln Lime Storage Bins include two lime storage bins, one for hot lime storage, and one for purchased lime storage. A common baghouse dust collector serves the two lime storage bins.	1972	FGRFASU
EUS29	The Recausticizing System has one emission unit: Lime Slaker (EUS29). In the slaker, calcium oxide from the Lime Kiln System (FGLK29) reacts with green liquor from the Smelt Dissolving tank (EUST15) to produce white liquor and lime mud. The reaction is carried out in the slaker and causticizers. The mixture is separated in two white liquor clarifiers. White liquor is used in the digesters as a cooking chemical. Lime mud is washed, dewatered and oxidized in the Lime Kiln System to regenerate calcium oxide for the slaking process. Emissions from the slaker are controlled by a wet scrubber.	1972 / 1984	FGRFASU
Changes to the equipment described in this table are subject to the requirements of R 336.1201, except as allowed by R 336.1278 to R 336.1290.			

The following conditions apply to: EURF15

DESCRIPTION: The #10 Chemical Recovery Furnace (EURF15) is used to regenerate chemicals used in the Kraft pulping process. The #10 Recovery Furnace burns black liquor, natural gas, #6 fuel oil, ultra-low sulfur diesel, and used oil. Also, the #10 Recovery Furnace receives and incinerates HVLC non-condensable gases from the Digester System, Brownstock System, Evaporator System, and Chemical Recovery Furnace System. The air handling system has been modified.

Flexible Group ID: NA

POLLUTION CONTROL EQUIPMENT: Electrostatic precipitator to control particulate matter.

I. EMISSION LIMITS

Pollutant	Limit	Time Period/ Operating Scenario	Equipment	Testing/ Monitoring Method	Underlying Applicable Requirements
1. Arsenic	0.004 mg/m^3 corrected to 70°F and 29.92 inches Hg[1]	Test Protocol*	EURF15 while burning used oil and/or blend fuel oil	SC V.2	R 336.1901
2. Cadmium	0.038 mg/m^3 corrected to 70°F and 29.92 inches Hg[1]	Test Protocol*	EURF15 while burning used oil and/or blend fuel oil	SC V.2	R 336.1901
3. Carbon Monoxide (CO)	2000 ppm by volume, based upon a one-hour average[2]	Test Protocol*	EURF15	SC V.1	R 336.1201, R 336.2804
4. CO	1424 pph, based upon a one-hour average[2]	Test Protocol*	EURF15	SC V.1	R 336.1201, R 336.2804
5. CO	800 ppm by volume, based upon an eight-hour average[2]	Test Protocol*	EURF15	SC V.1	R 336.1201, R 336.2804
6. CO	570 pph, based upon a eight-hour average	Test Protocol*	EURF15	SC V.1	R 336.1201, R 336.2804
7. Chromium	0.016 mg/m^3 corrected to 70°F and 29.92 inches Hg[1]	Test Protocol*	EURF15 while burning used oil and/or blend fuel oil	SC V.2	R 336.225, R 336.1901
8. HAP Metals measured as PM	0.044 gr/dscf, corrected to 8% oxygen**	Test Protocol*	EURF15	SC V.3	40 CFR 63.861, 40 CFR 63.862 (a)(1)(i)(A), 40 CFR 63.865(b), 40 CFR 63.862 (a)(1)(ii), 40 CFR 63.865(a), 40 CFR 63.865 (b)
9. NOx	400 ppm by volume[2]	Test Protocol*	EURF15	SC V.1	R 336.1201, R 336.2803, R 336.2804

Pollutant	Limit	Time Period/ Operating Scenario	Equipment	Testing/ Monitoring Method	Underlying Applicable Requirements
10. NOx	468 pph[2]	Test Protocol*	EURF15	SC V.1	R 336.1201, R 336.2803, R 336.2804
11. PM	0.033 gr/dscf corrected to 8% oxygen***	Test Protocol*	EURF15	SC V.1	R 336.1201, R 336.1331
12. PM	60.5 pph**	Test Protocol*	EURF15	SC V.1	R 336.1201, R 336.1331
13. Polychlorinated Biphenyls	0.014 mg/m^3 corrected to 70°F and 29.92 inches Hg[1]	Test Protocol*	EURF15 while burning used oil and/or blend fuel oil	SC V.2	R 336.1225, R 336.1901
14. SO_2	250 ppm by volume	Test Protocol*	EURF15	SC V.4	R 336.1201, R 336.2803, R 336.2804
15. SO_2	407 pph	Test Protocol*	EURF15	SC V.4	R 336.1201, R 336.2803, R 336.2804
16. Total Reduced Sulfur	5 ppm corrected to 8% oxygen on a 12-hour average[2]	Test Protocol*	EURF15	SC VI.2	R 336.1201, R 336.1225
17. Total Reduced Sulfur	5.6 pph[2] corrected to 8% oxygen on a 12-hour average[2]	Test Protocol*	EURF15	SC VI.2	R 336.1201, 40 CFR 60.283

* Test Protocol will specify averaging time.

** The permittee shall comply with the emission limits specified in one of the following options as provided in 40 CFR Part 63, Subpart MM:
a. The Particulate Matter (PM) concentration in the EURF15 exhaust gases shall not exceed 0.044 gr/dscf, corrected to 8% oxygen.[2]
OR
b. Alternative PM emission limits established for each existing recovery furnace, smelt dissolving tank, and lime kiln that operates 6,300 hours per year or more as provided under 40 CFR 63.862(a)(1)(ii), subject to the limitations specified.[2]

*** The permittee may petition the Department for an alternate particulate limit up to, but not exceeding, 0.044 gr/dscf of exhaust gases corrected to 8% oxygen. Such alternate particulate emission limit shall not be established by the Department unless the Department is reasonably convinced of all the following:
a. All reasonable measures to reduce particulate emissions have been implemented or will be implemented in accordance with a schedule approved by the Department.
b. Compliance with the original particulate emission limit is either technically or economically unreasonable.
c. The requested alternate particulate limit is the limit that reflects the level of emission that can be reasonable achieved on a consistent basis.

II. MATERIAL LIMITS

Material	Limit	Time Period/ Operating Scenario	Equipment	Testing/ Monitoring Method	Underlying Applicable Requirements
1. Used Oil	The concentration of the following materials in the used oil shall not exceed the limits specified below: a. Arsenic: 4 ppmw[1] b. Cadmium: 2 ppmw[1] c. Chromium: 10 ppmw[1] d. Lead: 25 ppmw[1] e. Total Halogens: 300 ppmw[1] f. Polychlorinated Biphenyls: 3 ppmw[1]	Annual Test	EURF15	SC VI.9	R 336.1225, R 336.1901
2. Used Oil	The minimum flash point temperature of the used oil burned in the EURF15 shall be greater than 100°F. [1]	Annual Test	EURF15	SC VI.9	R 336.1225, R 336.1901
3. Used Oil	Not to exceed 15% of the total feed rate of the fuel oil blend[1]	As defined in Testing/Sampling	EURF15	SC VI.8	R 336.1225, R 336.1901

III. PROCESS/OPERATIONAL RESTRICTIONS

1. The EURF15 operating load shall be reduced to 77,600 pounds of Black Liquor Solids (BLS) per hour if any two electric fields of the electrostatic precipitator are placed out of service. Return to operation exceeding 77,600 pounds of solids per hour shall not commence unless the two fields are returned to service.[2] **(R 336.1201, R 336.1331, R 336.1910, R 336.2803, R 336.2804)**

2. The EURF15 operating load shall be reduced to 77,600 pounds of BLS per hour if any one of the two chambers of the electrostatic precipitator are down for maintenance, during which all other ESP fields are operating in the active chamber. Return to operation exceeding 77,600 pounds of solids per hour shall not commence unless the other chamber of the electrostatic precipitator is returned to service.[2] **(R 336.1201, R 336.1331, R 336.1910, R 336.2803, R 336.2804)**

IV. DESIGN/EQUIPMENT PARAMETERS

NA

V. TESTING/SAMPLING

Records shall be maintained on file for a period of five years. **(R 336.1201(3))**

1. The permittee shall verify carbon monoxide, nitrogen oxides, and particulate emission rates from EURF15 by testing at owner's expense, in accordance with Department requirements. Once within five years of permit issuance, and once every five year period thereafter, the permittee shall verify the emission rates from the EURF15 by testing, to determine compliance with the emission limits specified in Section I. The permittee shall submit a complete test protocol to the AQD for approval at least 30 days prior to the anticipated test date. The permittee shall notify the AQD no less than 7 days prior to the anticipate test date. The permittee shall submit two complete test reports of the test results to the AQD, one to the Technical Program Unit and one to the district office, within 60 days following the last date of the test. [2] **(R 336.1205, R 336.1299, R 336.2001, R 336.2003, R 336.2004, R 336.2803, R 336.2804, 40 CFR 60.285(d))**

2. If the permittee burns used oil and/or blend fuel oil during sustained operation of the EURF15, the permittee shall verify arsenic, cadmium, chromium, and polychlorinated biphenyls emissions from the EURF15 by testing at owner's expense, in accordance with Department requirements. Once within five years of permit issuance, and once every five year period thereafter, or if the permittee subsequently burns used oil and/or blend fuel oil, the permittee shall verify the rates from the EURF15, by testing, to determine compliance with the emission limit specified in SC I. The permittee shall submit a complete test protocol to the AQD for approval at least 30 days prior to the anticipated test date. The permittee shall notify the AQD no less than 7 days prior to the anticipate test date. The permittee shall submit two complete test reports of the test results to the AQD, one to the Technical Program Unit and one to the district office, within 60 days following the last date of the test. [2] **(R 336.1224, R 336.1225, R 336.1299, R 336.2001, R 336.2003, R 336.2004)**

3. Permittee shall conduct performance tests for Particulate Matter per the applicable performance test requirements and test methods specified in 40 CFR Part 63, Subpart A and MM. **(40 CFR 63.7, 40 CFR 63.865)**

4. Performance tests shall be conducted according to procedures and test methods specified or approved by the AQD. Not less than 30 days prior to testing, a testing plan shall be submitted to the AQD for review. **(R 336.2001, R 336.2003)**

VI. MONITORING/RECORDKEEPING

Records shall be maintained on file for a period of five years. **(R 336.1201(3))**

1. The permittee shall complete all required calculations in a format acceptable to the AQD District Supervisor and make them available by the 30th day of the calendar month, for the previous calendar month, unless otherwise specified in any monitoring/recordkeeping special condition.[2] **(R 336.1205, R 336.1301, R 336.1331, R 336.1901, R 336.1910, R 336.2803, R 336.2804)**

2. The permittee shall monitor and record the oxygen content, opacity, and total reduced sulfur of the exhaust gases from EURF15 on a continuous basis in a manner and with instrumentation acceptable to the AQD. [2] The TRS monitoring shall utilize the quality assurance/quality control activities of 40 CFR Part 60, Appendix F, Procedure 1 as a guideline. Daily calibrations shall be conducted in accordance with 40 CFR Part 60, Appendix F, Procedure 1 Section 4. A cylinder gas audit shall be conducted once each calendar quarter in accordance with 40 CFR Part 60, Appendix F, Procedure 1 Section 5.1.2 in lieu of performing a relative accuracy test audit.[2] **(R 336.1201, 40 CFR 60.284)**

3. The permittee shall install, calibrate, maintain, and operate a COMS according to the provisions in 40 CFR 63.6(h) and 63.8. **(40 CFR 63.864(d))**

4. The permittee shall monitor and record the black liquor feed rate to EURF15 on a continuous basis in a manner and with instrumentation acceptable to the AQD. [2] **(R 336.1201, R 336.1331)**

5. The permittee shall monitor the electric current and/or voltage supplied to the twelve fields of the electrostatic precipitator on a continuous basis and in a manner and with instrumentation acceptable to the AQD. [2] **(R 336.1201, R 336.1910)**

6. The permittee shall monitor and record all occurrences when two fields of the electrostatic precipitator are taken out of service as specified under Operational Parameters below, the duration of each occurrence, and the black liquor solids firing rate during each occurrence. **(R 336.1910)**

7. The permittee shall keep a log of #6 fuel oil deliveries including date of delivery, quantity of #6 fuel oil received, and an analysis of the #6 fuel oil. **(R 336.1225, R 336.1901)**[1]

8. The permittee shall keep a record of the percentage of used oil in the fuel oil blend burned in the Recovery Furnace to determine compliance with the 15 percent limitation specified under Material Limits above. **(R 336.1225, R 336.1901)**[1]

9. An annual analysis of the used oil prior to transferring the used oil to the one million gallon #6 fuel oil storage tank shall be conducted to determine compliance with the material limits specified under Material Limits above. **(R 336.1225, 336.1901)**[1]

10. Within 30 days after written notification by the AQD, the permittee shall submit an analysis of the used oil and blend fuel oil fired in EURF15. **(R 336.1901)**[1]

11. The permittee shall implement corrective action, as specified in the SSM plan prepared under 40 CFR 63.866(a) when the average of ten consecutive 6 minute averages result in a measurement greater than 20 percent opacity. **(40 CFR 63.864(k)(1)(i))**

12. The source will be considered in violation of the standards of 40 CFR 63.862 if opacity is greater than 35 percent for 6 percent or more of the operating time in any quarterly period as specified in and 40 CFR 63.864(k)(2).[2] **(40 CFR 63.864(k)(2))**

13. As specified in §63.8(c)(4)(i), each COMS must complete a minimum of one cycle of sampling and analyzing for each successive 10-second period and one cycle of data recording for each successive 6-minute period. **(40 CFR 63.864(d)(3))**

14. The COMS data must be reduced as specified in §63.8(g)(2). **(40 CFR 63.864(d)(4))**

VII. REPORTING

1. Quarterly reporting of TRS continuous monitoring system performance and excess TRS emissions from the EURF15 as specified in Notification and Record Keeping, 40 CFR Part 60, Subpart A. **(40 CFR 60.7(c))**

2. Semiannual reporting of excess emissions of opacity from the EURF15 as specified in 40 CFR Part 60, Subpart BB. Due March 15 for reporting period July 1 to December 31 and September 15 for reporting period January 1 to June 30. **(40 CFR 60.284(d)(1))**

3. The permittee shall submit the applicable notifications and reports specified in 40 CFR 63.9 and 40 CFR 63.10. The permittee shall submit a quarterly excess emissions report if measured parameters meet any of the Conditions specified in 40 CFR 63.864(k)(1) or (2). When no exceedances of parameters have occurred, permittee shall submit a semiannual report stating that no excess emissions occurred during the reporting period. **(40 CFR 63.867)**

4. The permittee shall complete two complete test protocols to the AQD, one to the Technical Programs Unit Supervisor and one to the District Supervisor for approval at least 30 days prior to the anticipated test. The protocol shall describe the test method(s) and the maximum routine operating conditions, including targets for key operational parameters associated with air pollution control equipment to be monitored and recorded during testing. **(R 336.2001(3))**

5. The permittee shall notify the AQD Technical Programs Unit Supervisor and the District Supervisor no less than 7 days prior to the anticipated test date. **(R 336.2001(4))**

6. The permittee shall submit two complete test reports to the AQD, one to the Technical Programs Unit Supervisor and one to the District Supervisor, within 60 days following the last date of the test. **(R 336.2001(5))**

VIII. STACK/VENT RESTRICTIONS

The exhaust gases from the stacks listed in the table below shall be discharged unobstructed vertically upwards to the ambient air unless otherwise noted:

Stack & Vent ID	Maximum Exhaust Dimensions (inches)	Minimum Height Above Ground (feet)	Underlying Applicable Requirements
1. SV51001S	156[2]	284[2]	R 336.1225, R 336.2803, R 336.2804

IX. OTHER REQUIREMENT(S)

1. The air cleaning devices shall be maintained and operated in a satisfactory manner and in accordance with the Michigan Air Pollution Control Rules and existing law. The permittee shall carry out an Inspection and Maintenance Program, including keeping of records of inspections done, problems found, repairs done, and/or corrective action taken. **(R 336.1301, R 336.1331, R 336.1910)**

2. The permittee shall develop and implement a Startup, Shutdown, and Malfunction Plan as specified in 40 CFR Part 63, Subpart MM. **(40 CFR 63.866)**

3. The permittee shall comply with the applicable requirements of 40 CFR Part 63, Subpart A – General Provisions which are identified in 40 CFR Part 63, Table 1 to Subpart MM – General Provisions Applicability to Subpart MM. **(40 CFR 63.860(c))**

Footnotes:
[1] This condition is state only enforceable and was established pursuant to Rule 201(1)(b).
[2] This condition is federally enforceable and was established pursuant to Rule 201(1)(a).

FLEXIBLE GROUP SUMMARY TABLE

The descriptions provided below are for informational purposes and do not constitute enforceable conditions.

Flexible Group ID	Flexible Group Description	Associated Emission Unit IDs
FGRFASU	Operation of the Recovery Furnace with an air system upgrade including new air nozzles and nozzle locations, a new tertiary air fan, and additional black liquor firing nozzles.	EUBB23, EURF15, EUST15, EUS29, EUBB05, EUME05, EUBB22,EUOT22, EUMT22, EUBB33, EUMC33, EUOC33, EULKI29, EUB25, EUED25, EUM25, EU2PD40, EU1SB14, EU2SB14, EUCS14 and FGFUGITIVE*
*FGFUGITIVE	Fugitive dust emissions associated with roadways, softwood east chip pile, hardwood west chip pile and drop points.	NA

The following conditions apply to: FGRFASU

DESCRIPTION: Operation of the Recovery Furnace with an air system upgrade including new air nozzles and nozzle locations, a new tertiary air fan, and additional black liquor firing nozzles.

Emission Units: The FGRFASU includes the Brownstock System (EUBB23), Chemical Recovery Furnace System (EURF15), Smelt Dissolving Tank System (EUST15), Recausticizing System (EUS29), Evaporator System (EUBB05 and EUME05), Digester System (EUOT22, EUBB22 and EUMT22), Steam Stripper System (EUBB33 and EUMC33), Thermal Oxidizer System (EUOC33), Lime Kiln Lime Storage Bins (EULKI29), Bleach Plant System (EUB25, EUED25 and EUM25), #2 Pulp Dryer System (EU2PD40), Chip Surge Bin System (EU1SB14 and EU2SB14), Chip Thickness Screening System (EUCS14) and FGFUGITIVE.

POLLUTION CONTROL EQUIPMENT: Electrostatic precipitator on #10 Recovery Furnace (EURF15)

I. EMISSION LIMITS

N/A

II. MATERIAL LIMITS

N/A

III. PROCESS/OPERATIONAL RESTRICTIONS

N/A

IV. DESIGN/EQUIPMENT PARAMETERS

N/A

V. TESTING/SAMPLING

N/A

VI. MONITORING/RECORDKEEPING

Records shall be maintained on file for a period of five years. **(R 336.1201(3))**

1. The permittee shall complete all required calculations in a format acceptable to the AQD District Supervisor and make them available by the 30th day of the calendar month, for the previous calendar month, unless otherwise specified in any monitoring/recordkeeping special condition. **(R 336.1205, R 336.1301, R 336.1331, R 336.1910, R 336.2803, R 336.2804)**

2. The permittee shall calculate and keep records of PM, PM10, PM2.5, and NOx emission rates from FGRFASU, in tons per year on a calendar year basis. The recordkeeping period shall begin on the first day of the month during which the EURF15 and any of the affected emission units commences trial operation with the FGRFASU and shall continue for 5 years. The calculations and records shall be kept in a format acceptable to the Department. The permittee shall keep all records on file and make them available to the Department upon request. **(R 336.1205, R 336.2802(4)(d), R 336.2818)**

VII. REPORTING

1. Not less than 7 days before performance tests are conducted, the permittee shall notify the AQD District Supervisor in writing of the time and place of the performance tests and who shall conduct them. **(R 336.2001(3))**

2. The permittee shall submit records of PM, PM10, PM2.5, and NOx emissions from FGRFASU in tons per calendar year to both the AQD Permit Section Supervisor and the AQD District Supervisor within 60 days following the end of each calendar year identified in FGRFASU SC VI.2, if both of the following apply:
   a. The calendar year actual emissions of either PM, PM10, PM2.5, and NOx exceed the baseline actual emissions (BAE) by a significant amount, and
   b. The calendar year actual emissions differ from the pre-construction projection. The pre-construction projection is the sum of the projected actual emissions from each existing emission unit included in the Actual-to-Projected-Actual Applicability Test used for FGRFASU.

   The report shall contain the name, address, and telephone number of the facility; the annual emissions as calculated pursuant to FGRFASU, SC VI.2, and any other information the owner or operator wishes to include (i.e., an explanation why emissions differ from the pre-construction projection). **(R 336.2818(3)(f))**

3. Within 30 days after completion of the installation, construction, reconstruction, relocation, or modification authorized by this Permit to Install, the permittee or the authorized agent pursuant to Rule 204, shall notify the AQD District Supervisor, in writing, of the completion of the activity. **(R 336.1201(7)(a))**

VIII. STACK/VENT RESTRICTIONS

The exhaust gases from the stacks listed in the table below shall be discharged unobstructed vertically upwards to the ambient air unless otherwise noted:

Stack & Vent ID	Maximum Exhaust Diameter/Dimensions (inches)	Minimum Height Above Ground (feet)	Underlying Applicable Requirements
1. SV51001S	164.04[1]	284[1]	R 336.1225, R 336.2803, R 336.2804

IX. OTHER REQUIREMENTS

NA

Footnotes:
[1]This condition is state only enforceable and was established pursuant to Rule 201(1)(b).

APPENDIX 9-1c of ROP No
Actual to Projected Actual Emissions

Recordkeeping Provisions for a Source Using
Actual to Projected-Actual Applicability Test

All information in this Appendix shall be maintained pursuant to R 336.2818, for five years after the modification, and shall be made available to the Department upon request.

A. Project Description:

This project will provide the Recovery Furnace (EURF15) with an upgraded air system which includes new air nozzles, new air nozzle locations, a new tertiary air fan, and additional black liquor firing nozzles. The modifications are designed to improve Recovery Furnace efficiency, reduce fuel oil usage, reduce corrosion and cracking in the furnace, reduce furnace downtime, and control the char bed. The air system upgrade will allow for increased processing of black liquor solids (BLS) and incremental pulp production increases. FGRFASU is the flexible group which includes the following emission units which are affected by the increase in the processing of black liquor solids: the Brownstock System (EUBB23), Chemical Recovery Furnace System (EURF15), Smelt Dissolving Tank System (EUST15), Recausticizing System (EUS29), Evaporator System (EUBB05 and EUME05), Digester System (EUOT22, EUBB22 and EUMT22), Steam Stripper System (EUBB33 and EUMC33), Thermal Oxidizer System (EUOC33), Lime Kiln Lime Storage Bins (EULKI29), Bleach Plant System (EUB25, EUED25 and EUM25), #2 Pulp Dryer System (EU2PD40), Chip Surge Bin System (EU1SB14 and EU2SB14), Chip Thickness Screening System (EUCS14) and FGFUGITIVE.

B. Applicability Test Description:

Projected emissions were based on FGRFASU and a five-year projection.

C. Emission Limitations

Emission Unit/ Flexible Group ID	Pollutant	Baseline Actual	Projected Actual	Excluded	Reason for Exclusion
FGRFASU	PM	206.03	222.33	0	No emissions excluded.
FGRFASU	PM10	133.17	143.52	0	No emissions excluded.
FGRFASU	PM2.5	107.59	116.16	0	No emissions excluded.
FGRFASU	NOx	755.19	786.84	0	No emissions excluded.

D. Netting Calculations and Discussion

NA