Permit #: **28.9901-06**

Effective Date: **September 30, 2013**

Expiration Date: **September 9, 2016**

SOUTH DAKOTA DEPARTMENT OF ENVIRONMENT AND NATURAL RESOURCES

TITLE V AIR QUALITY OPERATING PERMIT

Steven M Pirner, P.E., Secretary
Department of Environment and Natural Resources

Under the
South Dakota Air Pollution Control Program

Pursuant to Chapter 34A-1-21 of the South Dakota Codified Laws and the Air Pollution Control Regulations of the State of South Dakota and in reliance on statements made by the owner designated below, a permit to operate is hereby issued by the Secretary of the Department of Environment and Natural Resources. This permit authorizes such owner to operate the unit(s) listed in Table #1 under the listed conditions.

A. Owner

1. Company Name and Mailing Address

3M Company
3M Center
I-94 & McKnight Road
Building 0224-05-W-03
St. Paul , MN 55144

2. Actual Source Location if Different from Above

3M Company
601 22nd Avenue South
Brookings, South Dakota 57006

3. Permit Contact

Megan Acker, EHS Engineer
(651) 733-1838

4. Facility Contact

Paul L. Peterson, EHS Engineer
(605) 696-1445

5. Responsible Official

Ann Getting, Plant Manager
(605) 696-1239

B. Permit Revisions

- January 9, 2012 – Permit modification to include the operation of a generator (Unit #31) and associated conditions;
- August 6, 2012 – Administrative amendment to change contact information;

- September 10, 2012 – Permit modification to add a corona treater (Unit #32);
- February 6, 2013 – Administrative amendment to change responsible official; and
- August 9, 2013 – Minor amendment to change generators applicability to 40 CFR Part 63, Subpart ZZZZ.
- September 30, 2013 – Permit modification to construct and operate a corona treater.

C. Type of Operation

3M Company manufactures medical and surgical products.

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1.0 Standard Conditions

1.1 Operation of source

In accordance with Administrative Rules of South Dakota (ARSD) 74:36:05:16.01(8), the owner or operator shall operate the units, controls, and processes as described in Table 1-1 in accordance with the statements, representations, and supporting data contained in the complete permit application received November 2, 2010, September 27, 2011, May 14, 2012, and May 20, 2013, unless modified by the conditions of this permit. Except as otherwise provided herein, the control equipment shall be operated in a manner that achieves compliance with the conditions of this permit at all times. The application consists of the application forms, supporting data, and supplementary correspondence. If the owner or operator becomes aware that it failed to submit any relevant facts in a permit application or submitted incorrect information in an application, such information shall be promptly submitted.

Table 1-1 – Description of Permitted Units, Operations, and Processes

Unit	Description	Maximum Operating Rate	Control Device
#3	Boiler #3 – 1979 Trane Murray steam boiler. The boiler itself does not have any fuel fired burners. Heat is provided by the exhaust gases from the regenerative thermal oxidizer.	Not applicable	Not applicable
#4a	M1 coating line – 1975 custom built coating line with two coating stations operated in parallel. The two coating stations will not operate simultaneously.	Web throughput of 127 square meters per minute	Regenerative Thermal Oxidizer (Unit #4f)
#4b	M2 coating line – 1975 custom built coating line with two coating stations operated in parallel. The two coating stations will not operate simultaneously.	Web throughput is 187 square meters per minute	
#4c	M3 coating line – 1975 custom built coating line with two coating stations operated in parallel. The two coating stations will not operate simultaneously.	Web throughput is 330 square meters per minute	
#4d	M4 coating line and drum enclosure – 1994 custom built coating line and drum enclosure.	Web throughput is 198 square meters per minute	
#4e	M6 coating line – 2006 custom built coating line.	Web throughput is 198 square meters per minute	

Unit	Description	Maximum Operating Rate	Control Device
#4f	2004 regenerative thermal oxidizer. The regenerative thermal oxidizer is fired by the exhaust gases from the coating lines and natural gas. The exhaust gases from the regenerative thermal oxidizer may be routed to Boiler #3 or its own stack.	Burner #1 – 32 million Btus per hour heat input	Not applicable
#7	Mixing room consisting of various drums, totes, and mixers used to mix or blend solvents and adhesives before being applied by the coaters.	Not applicable	Not Applicable
#8	Die cleaning room used to clean parts with solvents.	Not applicable	Not Applicable
#9a	1990 Una-Dyn silo used to store polyethylene and polypropylene resin pellets.	Storage capacity is 7,200 cubic feet and can be loaded at 2,800 pounds per hour	1990 Donaldson dust filter
#9b	1990 Una-Dyn silo used to store polyethylene and polypropylene resin pellets.	Storage capacity is 7,200 cubic feet and can be loaded at 2,800 pounds per hour	1990 Donaldson dust filter
#9c	1990 Una-Dyn silo used to store polyethylene and polypropylene resin pellets.	Storage capacity is 7,200 cubic feet and can be loaded at 2,800 pounds per hour	1990 Donaldson dust filter
#9d	1990 Una-Dyn silo used to store polyethylene and polypropylene resin pellets.	Storage capacity is 7,200 cubic feet and can be loaded at 2,800 pounds per hour	1990 Donaldson dust filter
#10a	Transfer of polyethylene or polypropylene resin pellets from the silos to the extruder area.	2,800 pounds per hour per silo	1990 Una-Dyn baghouse
#10b	Transfer of polyethylene or polypropylene resin pellets from the silos to the extruder area.	2,800 pounds per hour per silo	1990 Una-Dyn baghouse
#10c	Transfer of polyethylene or polypropylene resin pellets from the silos to the extruder area.	2,800 pounds per hour per silo	1990 Una-Dyn baghouse
#11a	Oven on the 4K maker line fired with natural gas.	4.5 million Btus per hour heat input	Not applicable
#11b	Oven on the 4K maker line fired	4.5 million Btus per hour	Not applicable

Unit	Description	Maximum Operating Rate	Control Device
	with natural gas.	heat input	
#13a	The 1735 film lab uses ethylene oxide to sterilize health care products.	Not applicable	Donaldson catalytic ethylene oxide abator.
#13b	The 1742 film lab uses ethylene oxide to sterilize health care products.	Not applicable	Not applicable
#14a	Tanks 12-A-7 – 1992 Clauson Tank Company aboveground tank used to store flammable adhesives.	15,000 gallons	Located inside a building
#14b	Tanks 12-A-8 – 1992 Clauson Tank Company aboveground tank used to store flammable adhesives.	15,000 gallons	Located inside a building
#14c	Tanks 12-A-9 – 1992 Clauson Tank Company aboveground tank used to store flammable adhesives.	15,000 gallons	Located inside a building
#17	24J extrusion process with hot melt coater – 2001 Davis Standard Corporation, model no. D-TEX-58, extruder.	1,905 tons of adhesive per year	Not applicable
#18	22J solventless coater – 1993 Davis Standard Corporation, model #60IN60TPTH, coater, with a natural gas flame treater.	2,100 pounds per hour of resin and 600 pounds per hour of adhesive. The flame treater has a maximum capacity of 0.18 million Btus per hour heat input.	Not applicable
#19	21J extrusion process – 1974 NRM, model Pacemaker III, extruder.	1,995 pounds of resin pellets per hour	Not applicable
#20	4K maker line – 1971 custom built process for coating non-woven webs.	Not applicable	Not applicable
#21	5K maker line – 1971 custom built process for coating non-woven webs.	Not applicable	Not applicable
#22	6K maker line – 1971 custom built process for coating non-woven webs.	Not applicable	Not applicable
#24	Three industrial cooling towers.	Not applicable	Not applicable
#25	Diesel Generator #2 – 2007 Detroit Diesel Series 60 emergency generator fueled with distillate oil.	635 horsepower or 400 kilowatts	Not applicable

Unit	Description	Maximum Operating Rate	Control Device
#27	Diesel Generator #1 – 1996 Ziegler/Caterpillar limited use diesel generator, model # 3406, fueled with distillate oil.	587 horsepower or 400 kilowatts	Not applicable
#28	Boiler #4 – 2000 Johnston, model PFTA 1000-4 steam boiler, fired with natural gas or distillate oil. The boiler is equipped with low NOx burners.	33.5 million Btus per hour heat input	Not applicable
#29	Boiler #5 – 2000 Johnston, model PFTA 1000-4 steam boiler, fueled with natural gas. The boiler is equipped with low NO_x burners.	33.5 million Btus per hour heat input	Not applicable
#30	Coating Line – 2008 PCT Engineered Systems Membrane Imbibing Station	50 feet per minute (line speed)	Not applicable
#31	Diesel Generator #3 – 2011 MTU Detroit, model #DS300D6S, nonemergency generator fueled with diesel.	343 kilowatts or 460 brake horsepower	Not applicable
#32	2012 Pillar Technologies corona treater located on the 21 J extrusion process.	10 kilowatts	Not applicable
#33	2013 Pillar Technologies corona treater.	10 kilowatts	Not applicable

1.2 <u>Duty to comply</u>

In accordance with ARSD 74:36:05:16.01(12), the owner or operator shall comply with the conditions of this permit. An owner or operator who knowingly makes a false statement in any record or report or who falsifies, tampers with, or renders inaccurate, any monitoring device or method is in violation of this permit. A violation of any condition in this permit is grounds for enforcement, reopening this permit, permit termination, or denial of a permit renewal application. The owner or operator, in an enforcement action, cannot use the defense that it would have been necessary to cease or reduce the permitted activity to maintain compliance. The owner or operator shall provide any information requested by the Secretary to determine compliance or whether cause exists for reopening or terminating this permit.

1.3 <u>Property rights or exclusive privileges</u>

In accordance with ARSD 74:36:05:16.01(12), the State's issuance of this permit, adoption of design criteria, and approval of plans and specifications does not convey any property rights of any sort, any exclusive privileges, any authorization to damage, injure or use any private property, any authority to invade personal rights, any authority to violate federal, state or local laws or

regulations, or any taking, condemnation or use of eminent domain against any property owned by third parties. The State does not warrant that the owner's or operator's compliance with this permit, design criteria, approved plans and specifications, and operation under this permit, will not cause damage, injury or use of private property, an invasion of personal rights, or violation of federal, state or local laws or regulations. The owner or operator is solely and severally liable for all damage, injury or use of private property, invasion of personal rights, infringement of federal, state or local laws and regulations, or taking or condemnation of property owned by third parties, which may result from actions taken under the permit.

1.4 Penalty for violating a permit condition

In accordance with South Dakota Codified Laws (SDCL) 34A-1-39 and 34A-1-47, a violation of a permit condition may subject the owner or operator to civil or criminal prosecution, a state penalty of not more than $10,000 per day per violation, injunctive action, administrative permit action, and other remedies as provided by law.

1.5 Inspection and entry

In accordance with SDCL 34A-1-41, the owner or operator shall allow the Secretary to:

1. Enter the premises where a regulated activity is located or where pertinent records are stored;
2. Have access to and copy any records that are required under this permit;
3. Inspect operations regulated under this permit; and/or
4. Sample or monitor any substances or parameters for the purpose of assuring compliance.

1.6 Severability

In accordance with ARSD 74:36:05:16.01(11), any portion of this permit that is void or challenged shall not affect the validity of the remaining permit requirements.

1.7 Permit termination, modification, or revocation

In accordance with ARSD 74:36:05:46, the Secretary may recommend that the Board of Minerals and Environment terminate, modify, or revoke this permit for violations of SDCL 34A-1 or the federal Clean Air Act or for nonpayment of any outstanding fee or enforcement penalty.

1.8 Credible evidence

In accordance with ARSD 74:36:13:07, credible evidence may be used for the purpose of establishing whether the owner or operator has violated or is in violation of this permit. Credible evidence is as follows:

1. Information from the use of the following methods is presumptively credible evidence of whether a violation has occurred at the source:
   a. A monitoring method approved for the source pursuant to 40 CFR § 70.6(a)(3) and incorporated in this permit; or
   b. Compliance methods specified in an applicable plan;
2. The following testing, monitoring, or information gathering methods are presumptively credible testing, monitoring, or information-gathering methods:

a. Any monitoring or testing methods approved in this permit, including those in 40 CFR Parts 51, 60, 61, and 75; or
b. Other testing, monitoring, or information-gathering methods that produce information comparable to that produced by any method in section (1) or (2)(a).

2.0 Permit Fees

2.1 Annual air fee required

In accordance with ARSD 74:36:05:06.01, the owner or operator shall submit an annual administrative fee and an annual fee. The fee is based on actual emissions in accordance with ARSD 74:37.

2.2 Annual operational report

In accordance with ARSD 74:37:01:06, the Secretary will supply the owner or operator with an annual operational report in January of each year. The owner or operator shall complete and submit the operational report to the Secretary by March 1 of each year. The responsible official shall sign the operational report in the presence of a notary public.

2.3 Annual air fee

In accordance with ARSD 74:37:01:08, the Secretary will notify the owner or operator of the required annual air emission fee and administrative fee by June 1 of each year. The fees shall accrue on July 1 and are payable to the Department of Revenue by July 31 of each year.

3.0 Permit Amendment and Modification Conditions

3.1 Permit flexibility

In accordance with ARSD 74:36:05:30, the owner or operator shall have the flexibility to make changes to the source during the term of this permit. The owner or operator shall provide the Secretary written notice at least seven days in advance of the proposed change (NOTE: The Secretary will forward a copy of the written notice to EPA). The written notice shall include a brief description of the change, the date on which the change is to occur, any change in emissions, the proposed changes to the permit, and whether the requested revisions are for an administrative permit amendment, minor permit amendment, or permit modification.

The Secretary will notify the owner or operator whether the change is an administrative permit amendment, a minor permit amendment, or a permit modification. A proposed change that is considered an administrative permit amendment or a minor permit amendment can be completed immediately after the Secretary receives the written notification. The owner or operator must comply with both the applicable requirements governing the change and the proposed permit terms and conditions until the Secretary takes final action on the proposed change.

A proposed change that is considered a modification cannot be constructed until the Secretary takes final action on the proposed change. Permit modifications are subject to the same

procedural requirements, including public comment, as the original permit issuance except that the required review shall cover only the proposed changes.

3.2 Administrative permit amendment

In accordance with ARSD 74:36:05:33, the Secretary has 60 days from receipt of a written notice to verify that the proposed change is an administrative permit amendment. As provided in ARSD 74:36:01:03, the Secretary considers a proposed change an administrative permit amendment if the proposed change accomplishes one of the following:

1. Corrects typographical errors;
2. Changes the name, address, or phone number of any person identified in this permit or provides a similar minor administrative change at the source;
3. Requires more frequent monitoring or reporting by the source;
4. The ownership or operational control of a source change and the Secretary determines that no other change in this permit is necessary. However, the new owner must submit a certification of applicant form and a written statement specifying the date for transfer of operating permit responsibility, coverage, and liability; or
5. Any other changes that the Secretary and the administrator of EPA determines to be similar to those requirements in this condition.

3.3 Minor permit amendment

In accordance with ARSD 74:36:05:38, the Secretary has 90 days from receipt of a written notice or 15 days after the end of EPA's 45-day review period, whichever is later, to take final action on a minor permit amendment. Final action consists of issuing or denying a minor permit amendment or determining that the proposed change is a permit modification. As provided in ARSD 74:36:05:35, the Secretary considers a proposed change to be a minor permit amendment if the proposed change:

1. Does not violate any applicable requirements;
2. Does not involve significant changes to existing monitoring, reporting, or record keeping requirements;
3. Does not require or change a case-by-case determination of an emission limit or other standard, a source-specific determination for temporary sources of ambient impacts, or a visibility or increment analysis; or
4. Does not seek to establish or change a permit term or condition for which the source has assumed to avoid an applicable requirement, a federally enforceable emission cap, or an alternative emission limit. An alternative emission limit is approved pursuant to regulations promulgated under section 112(i)(5) of the federal Clean Air Act.

3.4 Permit modification

In accordance with ARSD 74:36:05:39, an owner or operator may apply for a permit modification. A permit modification is defined in ARSD 74:36:01:10 as a physical change in or change in the operation of a source that results in at least one of the following:

1. An increase in the amount of an air pollutant emitted by the source or results in the emission of an air pollutant not previously emitted;
2. A significant change to existing monitoring, reporting, or record keeping requirements in the permit;
3. The change requires or changes a case-by-case determination of an emission limit or other standard, a source-specific determination for temporary sources of ambient impacts, or a visibility or increment analysis; or
4. The change seeks to establish or change a permit term or condition for which there is a corresponding underlying applicable requirement that the source has assumed to avoid an applicable requirement, a federally enforceable emissions cap assumed to avoid classification as a modification under a provision of the Title I of the Clean Air Act, or an alternative emissions limit approved pursuant to regulations promulgated under section 112(i)(5) of the Clean Air Act.

Permit modifications are subject to the same procedural requirements, including public comment, as the original permit issuance except that the required review shall cover only the proposed changes.

3.5 Permit revision

In accordance with ARSD 74:36:05:40, the Secretary may reopen and revise this permit to meet requirements of SDCL 34A-1 or the federal Clean Air Act.

3.6 Testing new fuels or raw materials

In accordance with ARSD 74:36:11:04, an owner or operator may request permission to test a new fuel or raw material to determine if it is compatible with existing equipment before requesting a permit amendment or modification. A complete test proposal shall consist of the following:

1. A written proposal that describes the new fuel or raw material, operating parameters, and parameters that will be monitored and any testing associated with air pollutant emissions during the test;
2. An estimate of the type and amount of regulated air pollutant emissions that will result from the proposed change; and
3. The proposed schedule for conducting the test. In most cases the owner or operator will be allowed to test for a maximum of one week. A request for a test period longer than one week will need additional justification. A test period shall not exceed 180 days.

The Secretary shall approve, conditionally approve, or deny in writing the test proposal within 45 days after receiving a complete proposal. Approval conditions may include changing the test schedule or pollutant sampling and analysis methods. Pollutant sampling and analysis methods may include, but are not limited to performance testing, visible emission evaluation, fuel analysis, dispersion modeling, and monitoring of raw material or fuel rates.

If the Secretary determines that the proposed change will result in an increase in the emission of a regulated air pollutant or result in the emission of an additional regulated air pollutant, the Secretary shall give public notice of the proposed test for 30 days. The Secretary shall consider

all comments received during the 30-day public comment period before making a final decision on the test.

The Secretary will not approve a test if the test would cause or contribute to a violation of a national ambient air quality standard.

4.0 Permit Renewal Requirements

4.1 Permit effective

In accordance with ARSD 74:36:05:07, this permit shall expire five years from date of issuance unless reopened or terminated for cause.

4.2 Permit renewal

In accordance with ARSD 74:36:05:08, the owner or operator shall submit an application for a permit renewal at least 180 days before the date of permit expiration if the owner or operator wishes to continue an activity regulated by this permit. The current permit shall not expire and shall remain in effect until the Secretary takes final action on the timely permit renewal application.

4.3 Permit expiration

In accordance with ARSD 74:36:05:28, permit expiration terminates the owner's or operator's right to operate any unit covered by this permit.

5.0 Recordkeeping and Reporting Requirements

5.1 Recordkeeping and reporting

In accordance with ARSD 74:36:05:16.01(9), the owner or operator shall maintain all monitoring data, records, reports, and pertinent information specified by this permit for five years from the date of sample, measurement, report, or application unless otherwise specified in this permit. The records shall be maintained on site for the first two years and may be maintained off site for the last three years. All records must be made available to the Secretary for inspection. All notifications and reports shall be submitted to the following address:

South Dakota Department of Environment and Natural Resources
PMB 2020, Air Quality Program
523 E. Capitol, Joe Foss Building
Pierre, SD 57501-3182

5.2 Signatory requirements

In accordance with ARSD 74:36:05:12 and ARSD 74:36:05:16.01, all applications submitted to the Secretary shall be signed and certified by a responsible official. A responsible official for a corporation is a responsible corporate officer and for a partnership or sole proprietorship is a general partner or the proprietor, respectively. All reports or other information submitted to the

Secretary shall be signed and certified by a responsible official or a duly authorized representative. A person is a duly authorized representative only if:

1. The authorization is made in writing by a person described above and submitted to the Secretary; and
2. The authorization specifies either an individual or a position having responsibility for the overall operation of the regulated facility, such as the position of plant manager, superintendent, position of equivalent responsibility, or an individual or position having overall responsibility for environmental matters.

The responsible official shall notify the Secretary if an authorization is no longer accurate. The new duly authorized representative must be designated prior to or together with any reports or information to be signed by a duly authorized representative.

5.3 Certification statement

In accordance with ARSD 74:36:05:16.01(14)(a), all documents required by this permit, including application forms, reports, and compliance certification, must be certified by a responsible official or a duly authorized representative. The certification shall include the following statement:

> "I certify that, based on information and belief formed after reasonable inquiry, the statements and information in this document and all attachments are true, accurate, and complete."

5.4 Tanks design drawings

In accordance with ARSD 74:36:07:14, as referenced to 40 CFR § 60.110b(b) and (c), the owner or operator shall maintain plans and specifications that show the dimensions and an analysis of the capacity of Tanks 12-A-7, 12-A-8, and 12-A-9. The plans and specifications shall be maintained for the life of the facility.

5.5 Monitoring log

In accordance with ARSD 74:36:05:16.01(9), the owner or operator shall maintain a monitoring log. The monitoring log shall contain the following information.

1. Maintenance schedule for each piece of control equipment listed in Table 1-1. At a minimum, the maintenance schedule shall meet the manufacturer's recommended schedule for maintenance. The following information shall be recorded for maintenance:
   a. Identify the unit;
   b. The date and time maintenance was performed;
   c. Description of the type of maintenance;
   d. Reason for performing maintenance;
   e. Signature of person performing maintenance;
2. The following information shall be recorded for each visible emission reading required in permit condition 11.1:
   a. Identify the unit;
   b. The date and time the visible emission reading was performed;

   c. If visible emissions were observed;
   d. Description of maintenance performed to eliminate visible emissions;
   e. Visible emission evaluation if visible emissions are not eliminated; and
   f. Signature of person performing visible emission reading and/or visible emission evaluation;
3. The owner or operator shall maintain relevant records of the occurrence and duration of each startup, shutdown, or malfunction of process equipment and/or air pollution control equipment; and
4. The following information shall be recorded within two days of each emergency exceedance:
   a. The date of the emergency exceedance and the date the emergency exceedance was reported to the Secretary;
   b. The cause(s) of the emergency;
   c. The reasonable steps taken to minimize the emissions during the emergency; and
   d. A statement that the permitted equipment was at the time being properly operated.

5.6 Monthly ethylene oxide records

In accordance with ARSD 74:36:08:10, as referenced to 40 CFR § 63.367(c), the owner or operator shall maintain a calendar month record of the amount of ethylene oxide used each month. A 12-month rolling total shall be calculated every month using that month's value and the previous 11 months' values to demonstrate compliance with permit condition 6.7.

5.7 Monthly coating records for M1, M2, M3, M4, and M6 coater lines

In accordance with ARSD 74:36:09:02, as referenced to ARSD 74:36:05:16.01(9), the owner or operator shall record and maintain the following information on a monthly basis:

1. A monthly record of the amount of volatile organic compound emissions, in tons, emitted into the ambient air from the M1, M2, M3, M4, and M6 coating lines when the exhaust gases are not passed through the regenerative thermal oxidizer;
2. A monthly record of all coatings used by the M1, M2, M3, M4, and M6 coating lines when the exhaust gases are passed through the regenerative thermal oxidizer;
3. Calculate the amount of volatile organic compounds, in tons, emitted into the ambient air from the M1, M2, M3, M4, and M6 coating lines during the month when the exhaust gases are passed through the regenerative thermal oxidizer using Equation 5-1;

Equation 5-1 – Calculating M1, M2, M3, M4, and M6 coating line emissions

$$E_{VOC} = \left(VOC_{input} \times CE \times \left(1 - DE\right)\right) + \left(VOC_{input} \times \left(1 - CE\right)\right)$$

Where:

- E_{VOC} = Monthly volatile organic compound emissions, in tons, from the coating line through regenerative thermal oxidizer;
- VOC_{input} = Quantity of volatile organic compounds, in tons, inputted to the coating line when exhaust gases from the coating line are passed through the regenerative thermal oxidizer;
- CE = Capture efficiency of the coating line capture system based on the most recent capture efficiency test; and

- DE = Destruction efficiency of the regenerative thermal oxidizer as determined by the most recent destruction efficiency test.

4. Calculate the amount of volatile organic compounds, in tons, emitted into the ambient air from the M1 coating line during the month and during the 12-month rolling period for that month. The monthly volatile organic compounds emissions from the M1 coating line is the summation of paragraph (2) and (3) of this permit condition; and
5. The overall volatile organic control efficiency for the M1, M2, M3, M4, and M6 coating lines shall be calculated for the regenerative thermal oxidizer using Equation 5-2.

Equation 5-2 – Overall VOC control efficiency for M1, M2, M3, M4, and M6 coating lines

$EF = ((((1-(CE_{M1} x(1-DE_{M1})+(1-CE_{M1}))) + (1-(CE_{M2} x(1-DE_{M2})+(1-CE_{M2}))) + (1-(CE_{M3} x(1-DE_{M3})+(1-CE_{M3}))) + (1-(CE_{M4} x(1-DE_{M4})+(1-CE_{M4}))) + (1-(CE_{M6} x(1-DE_{M6})+(1-CE_{M6})))) x (100) / (\text{the number of coating lines operated – 0 through 5})$

Where:

- EF = Overall volatile organic compound control efficiency;
- CE = Capture efficiency of the coating line capture system based on the most recent capture efficiency test; and
- DE = Destruction efficiency of the regenerative thermal oxidizer as determined by the most recent destruction efficiency test.

5.8 <u>Installation of non-resettable clocks on diesel generators</u>

In accordance with ARSD 74:36:13:01, the owner or operator shall install a non-resettable clock on Unit #25 and #27. The clocks shall continuously record the hours of operation for each diesel engine.

5.9 <u>Annual records</u>

In accordance with ARSD 74:36:05:16.01(9), the owner or operator shall calculate and record the following amounts from January 1 to December 31 of each year:

1. The amount of natural gas and distillate oil burned in Units #4c, #4f, #11a, #11b, #18, #21, #22, #25, #27, #28, and #29;
2. The amount of volatile organic compounds emitted from Units #4a, #4b, #4c, #4d, 4e, #7, #8, #14a, #14b, #14c, #17 through #22, and #30; and
3. The amount of resin transferred through Units #9a, #9b, #9c, #9d, #10a, #10b, and #10c.

5.10 <u>Quarterly report</u>

In accordance with ARSD 74:36:05:16.01(9), the owner or operator shall submit a quarterly report to the Secretary. The quarterly report shall contain the following information:

1. Name of facility, permit number, reference to this permit condition, identifying the submittal as a quarterly report and calendar dates covered in the reporting period; and

2. The quantity of volatile organic compounds emitted from the M1, M2, M3, M4, and M6 coating lines, in tons, in each month and the 12-month rolling total for each month in the reporting period and supporting documentation; and
3. The overall volatile organic compound emission control efficiency for Unit #4a through #4e, in percent, for each month in the reporting period, the 12-month rolling total for each month in the reporting period, and supporting documentation.

The information required for the quarterly report in permit condition 7.14 may be combined with this quarterly report and submitted together. Quarterly reports must be postmarked no later than 30 days after the end of the reporting period.

5.11 <u>Semiannual compliance report</u>

In accordance with ARSD 74:36:08:03, as referenced to 40 CFR § 63.10(d)(5)(i), and 74:36:08:29, as referenced to 40 CFR § 63.3400(c), the owner or operator shall submit a semiannual compliance report to the Secretary. The semiannual report shall contain the following information:

1. Name of facility, permit number, reference to this permit condition, and identification of the submittal as a semiannual compliance report;
2. Statement by a responsible official with that official's name, title, and signature certifying the accuracy of the content of the report;
3. Date of the report and beginning and ending dates of the reporting period;
4. A copy of the results of each distillate oil analysis obtained during the reporting period;
5. The following information related to actions taken by the owner or operator during startups, shutdowns, and malfunctions that occurred during the reporting period:
   a. The number, duration, and a brief description for each type of malfunction which occurred during the reporting period and which caused or may have caused any applicable emission limitation to be exceeded;
   b. The owner or operator shall state if the actions taken by an owner or operator during a startup, shutdown, or malfunction are consistent with the procedures specified in the startup, shutdown, and malfunction plan; and
   c. The owner or operator shall identify any instance where any action taken by an owner or operator during a startup, shutdown, or malfunction (including actions taken to correct a malfunction) is not consistent with the startup, shutdown, and malfunction plan, but the source does not exceed any applicable emission limitation in the relevant emission standard;
4. If there are no deviations from any applicable emission limit or operating limit, a statement that there were no deviations during the reporting period, and that no continuous monitoring system was inoperative, inactive, malfunctioning, out-of-control, or adjusted.
5. For each deviation from an applicable emission limit or operating limit, the compliance report must contain the following information:
   a. The total operating time of Unit #4a, #4b, #4c, #4d, #4e, #17, #18, #20 through #23, and #30 during the reporting period;
   b. Information on the number, duration, and cause of deviations, including unknown cause, if applicable, and the corrective action taken; and

c. Information on the number, duration, and cause for continuous parameter monitoring system downtime incidents, if applicable, other than downtime associated with zero and span and other calibration checks.

The semiannual reports shall cover the periods July 1 through December 31 and January 1 through June 30 of each year. The semiannual reports must be postmarked or delivered no later than January 31 or July 31 of each year.

5.12 <u>Startup, shutdown, and malfunction plan</u>

In accordance with ARSD 74:36:08:03, as referenced to 40 CFR § 63.6(e)(3), the owner or operator shall develop and implement a written startup, shutdown, and malfunction plan by December 5, 2005, that describes, in detail, the following:

1. Procedures for operating and maintaining Units #4a, #4b, #4c, #4d, #4e, #17, #18, and #20 through #23, and the associated air pollution control and monitoring equipment during periods of startup, shutdown, and malfunctions;
2. Ensure that, at all times, the owner or operator operates and maintains Units #4a, #4b, #4c, #4d, #4e, #17, #18, and #20 through #23, and associated air pollution control and monitoring equipment in a manner which satisfies the general duty to minimize emissions established by permit condition 6.20;
3. Ensure that owner or operator are prepared to correct malfunctions as soon as practicable after their occurrence in order to minimize excess emissions of hazardous air pollutants; and
4. A program of corrective action for malfunctioning process and air pollution control and monitoring equipment used to comply with the relevant standard.

The owner or operator may use its standard operating procedures (SOP) manual, an Occupational Safety and Health Administration (OSHA), or other plan, as its startup, shutdown, and malfunction plan provided the alternative plans meet all the requirements of this permit condition.

During periods of startup, shutdown, and malfunction, the owner or operator must operate and maintain the permitted units, associated air pollution control devices, and monitoring equipment in accordance with the procedures specified in the startup, shutdown, and malfunction plan. If the startup, shutdown, and malfunction plan is revised, the owner or operator must maintain at the facility each previous (i.e., superseded) version of the startup, shutdown, and malfunction plan. If at any time after adoption of a startup, shutdown, and malfunction plan the owner or operator ceases operation, the owner or operator must retain a copy of the most recent plan for five years from the date the source ceases operation.

5.13 <u>Startup, shutdown, and malfunction records</u>

In accordance with ARSD 73:36:08:03, as referenced to 40 CFR § 63.10(b)(2), the owner or operator shall maintain the following records for the operations, air pollution control devices, and monitoring equipment associated with Units #4a, #4b, #4c, #4d, #4e, #17, #18, and #20 through #22:

1. The occurrence and duration of each startup, shutdown, or malfunction;

2. All required maintenance performed on the air pollution control devices and monitoring equipment;
3. Actions taken during periods of startup, shutdown, and malfunctions when such actions are different from the procedures specified in the startup, shutdown, and malfunction plan. This includes corrective actions to restore malfunctioning process and air pollution control and monitoring equipment to its normal or usual manner of operation; and
4. All information necessary to demonstrate conformance with the startup, shutdown, and malfunction plan when all actions taken during periods of startup, shutdown, and malfunction are consistent with the procedures specified in the plan. This information may be recorded using a "check list" or some other effective form of record keeping;

5.14 Annual compliance certification

In accordance with ARSD 74:36:05:16.01(14), the owner or operator shall submit an annual compliance certification letter to the Secretary by March 1 of each year this permit is in effect (NOTE: The Secretary will forward a copy of the certification letter to EPA). The certification shall contain the following information:

1. Methods used to determine compliance, including: monitoring, record keeping, performance testing and reporting requirements;
2. The source is in compliance and will continue to demonstrate compliance with all applicable requirements;
3. In the event the source is in noncompliance, a compliance plan that indicates how the source has or will be brought into compliance; and
4. Certification statement required in permit condition 5.3.

5.15 Immediate reporting

In accordance with ARSD 74:36:08:03, as referenced to 40 CFR § 63.10(d)(5)(ii), if an action taken by the owner or operator during a startup, shutdown, or malfunction is not consistent with the procedures specified in the startup, shutdown, and malfunction plan, and exceeds any applicable emission limit in this permit, then the owner or operator must record the actions taken for that event and must report by telephone or in writing of such actions within two working days after commencing actions inconsistent with the plan, followed by a letter, delivered or postmarked within seven working days after the end of the event, unless the owner or operator makes alternative reporting arrangements, in advance, with the Secretary. The letter shall contain the name, title, and signature of the owner or operator or other responsible official who is certifying its accuracy, explaining the circumstances of the event, the reasons for not following the startup, shutdown, and malfunction plan, and describing all excess emissions and/or parameter monitoring exceedances which are believed to have occurred.

5.16 Reporting permit violations

In accordance with ARSD 74:36:05:16.01(9), the owner or operator shall report all permit violations. A permit violation should be reported as soon as possible, but no later than the first business day following the day the violation was discovered. The permit violation may be reported by telephone to the South Dakota Department of Environment and Natural Resources at (605) 773-3151 or by FAX at (605) 773-5286.

A written report shall be submitted within five days of discovering the permit violation. Upon prior approval from the Secretary, the submittal deadline for the written report may be extended up to 30 days. The written report shall contain:

1. Description of the permit violation and its cause(s);
2. Duration of the permit violation, including exact dates and times; and
3. Steps taken or planned to reduce, eliminate, and prevent reoccurrence of the permit violation.

6.0 Control of Regulated Air Pollutants

6.1 Visibility limit

In accordance with ARSD 74:36:12:01, the owner or operator may not discharge into the ambient air an air contaminant of a density equal to or greater than that designated as 20 percent opacity from any permitted unit, operation, or process listed in Table 1-1. This provision does not apply when the presence of uncombined water is the only reason for failure to meet the requirement.

6.2 Visibility exceedances

In accordance with ARSD 74:36:12:02, an exceedance of the operating limit in permit condition 6.1 is not considered a violation during brief periods of soot blowing, start-up, shutdown, or malfunctions. Malfunction means any sudden and unavoidable failure of air pollution control equipment, process equipment, or a process to operate in a normal or usual manner. A failure caused entirely or in part by poor maintenance, careless operation, preventable equipment breakdown, or any other cause within the control of the owner or operator of the source is not a malfunction and is considered a violation.

6.3 Total suspended particulate matter limits

In accordance with ARSD 74:36:06:02(1) and/or ARSD 74:36:06:03(1), the owner or operator shall not allow the emission of total suspended particulate matter in excess of the emission limit specified in Table 6-1 for the appropriate permitted unit, operation, and process:

Table 6-1 – Particulate Emission Limit

Unit	Description	Emission Limit
#4f [1]	Regenerative thermal oxidizer	0.5 pounds per MMBtus heat input
#9a	Resin silo	5.1 pounds per hour
#9b	Resin silo	5.1 pounds per hour
#9c	Resin silo	5.1 pounds per hour
#9d	Resin silo	5.1 pounds per hour
#10a	Transfer from silos to extruders	5.1 pounds per hour
#10b	Transfer from silos to extruders	5.1 pounds per hour
#10c	Transfer from silos to extruders	5.1 pounds per hour
#11a	4K maker line, Oven #1	0.6 pounds per million Btus heat input
#11b	4K maker line, Oven #2	0.6 pounds per million Btus heat input

Unit	Description	Emission Limit
#25	Diesel generator #2	0.5 pounds per million Btus heat input
#27	Diesel generator #1	0.5 pounds per million Btus heat input
#28	Boiler #4	0.5 pounds per million Btus heat input
#29	Boiler #5	0.5 pounds per million Btus heat input

[1] – The emissions from the regenerative thermal oxidizer may pass through the stack associated with Unit #4f or may pass through the stack associated with Unit #3. In either case, the particulate limit is applicable to both stacks.

6.4 Sulfur dioxide limits

In accordance with ARSD 74:36:06:02(2) and/or ARSD 74:36:06:03(2), the owner or operator shall not allow the emission of sulfur dioxide in excess of the emission limit specified in Table 6-2 for the appropriate permitted unit, operations, and process.

Table 6-2 – Sulfur Dioxide Emission Limit

Unit	Description	Emission Limit
#4f [1]	Regenerative Thermal Oxidizer	3.0 pounds per million Btus heat input
#11a	4K maker line, Oven #1	3.0 pounds per million Btus heat input
#11b	4K maker line, Oven #2	3.0 pounds per million Btus heat input
#25	Diesel generator #2	3.0 pounds per million Btus heat input
#27	Diesel generator #1	3.0 pounds per million Btus heat input
#28	Boiler #4	3.0 pounds per million Btus heat input
#29	Boiler #5	3.0 pounds per million Btus heat input

[1] – The emissions from the regenerative thermal oxidizer may pass through the stack associated with Unit #4f or may pass through the stack associated with Unit #3. In either case, the sulfur dioxide limit is applicable to both stacks.

Compliance with the sulfur dioxide emission limit is based on a three-hour rolling average, which is the arithmetic average of three contiguous one-hour periods.

6.5 Nitrogen oxide limit for Unit #28 and #29

In accordance with ARSD 74:36:09:02, as referenced to ARSD 74:36:05:16.01(8), the owner or operator shall not allow the emissions of nitrogen oxide from Unit #28 and Unit #29 in excess of 0.04 pounds per million Btus while firing natural gas.

6.6 Distillate oil limit for Unit #28

In accordance with ARSD 74:36:05:16.01(8), the owner or operator shall not burn more than 500,000 gallons total in Unit #28 during any 12-month rolling period. The 12-month rolling total shall be calculated every month using that month's value and the previous 11 months' values.

6.7 Ethylene oxide limit

In accordance with ARSD 74:36:08:10, as referenced to 40 CFR § 63.360(b), the owner or operator shall not use one ton or greater of ethylene oxide in any 12-month rolling period. Compliance shall be determined based on the monthly records required in permit condition 5.6.

6.8 M1 coating line long term volatile organic compound emission limit

In accordance with ARSD 74:36:05:16.01(8), the owner or operator shall limit the volatile organic compound emissions from the M1 coating line to less than or equal to 264 tons of volatile organic compound emission per 12-month period. Compliance with the volatile organic compound emission limit shall be based on a 12-month rolling total. The 12-month rolling total is determined by adding each monthly volatile organic compound emission rate determined in permit condition 5.7 to the 11 previous monthly emission rates.

6.9 Coating line volatile organic compound input limits

In accordance with ARSD 74:36:05:16.01(8), the owner or operator shall not allow the input of volatile organic compound emission to the M1, M2, M3, M4, and M6 coating lines in excess of the emission limits specified in Table 6-3 for the appropriate permitted unit, operation or process.

Table 6-3 – VOC Emission Input Limit

Unit	Description	VOC Input Limit
#4a	M1 coating line	2,300 pounds per hour
#4b	M2 coating line	3,300 pounds per hour
#4c	M3 coating line	6,500 pounds per hour
#4d	M4 coating line	3,500 pounds per hour
#4e	M6 coating line	3,500 pounds per hour

6.10 M1, M2, and M3 coating lines

In accordance with ARSD 74:36:05:16.01(8), the owner or operator may allow the emissions from the M1, M2, and M3 coating lines to bypass the regenerative thermal oxidizer for the following reasons:

1. Times when the control device is not operating due to startup, shutdown, and malfunctions of the control device. A failure caused entirely or in part by poor maintenance, careless operation, preventable equipment breakdown, or any other cause within the control of the owner or operator of the source is not considered a malfunction; or
2. Times when preventative maintenance is being conducted on the regenerative thermal oxidizer. Excessive preventative maintenance caused entirely or in part by poor maintenance, careless operation or any other cause within the control of the owner operator is not considered preventative maintenance; or
3. Times when water-based coating solutions are being used on the coating line(s). To be considered a water-based coating solution, the solution shall not contain more than five percent volatile organic compounds; and
4. The owner or operator can demonstrate compliance with permit condition 6.10 during the bypass.

6.11 Overall control efficiency for M1, M2, M3, M4, and M6 coating lines

In accordance with ARSD 74:36:05:16.01(8), the owner or operator shall maintain a 93 percent volatile organic compound control efficiency for the M1, M2, M3, M4, and M6 coating lines when

passing the exhaust gases through the regenerative thermal oxidizer. The overall control efficiency for the regenerative thermal oxidizer shall be determined by the calculation by Equation 5-2.

6.12 Organic HAP limit for Unit #4, #17, #18, #20 through #22, and #30

In accordance with ARSD 74:36:08:29, as referenced to 40 CFR §§ 63.3320(a) and (b) and 63.3330(a), on and after December 5, 2005, the owner or operator shall limit the organic hazardous air pollutant emissions from Units #4a, #4b, #4c, #4d, #4e, #17, #18, #20 through #22, and #30 by one or a combination of the following methods:

1. No more the five percent of the organic hazardous air pollutant applied for each month (95 percent reduction); or
2. No more than four percent of the mass of coating materials applied for each month; or
3. No more than 20 percent of the mass of coating solids applied for each month.

Compliance with this permit condition shall be demonstrated based on the permit conditions in Chapter 8.0 and/or 9.0.

6.13 Sulfur content limit

In accordance with ARSD 74:36:05:16.01(8), the owner or operator shall not burn distillate oil with a sulfur content greater than 0.05 weight percent sulfur by weight in Unit #28.

6.14 BACT limits for volatile organic compounds

In accordance with ARSD 74:36:09:02, as referenced to 40 CFR § 52.21(j)(3), on or after the initial startup of the M6 coater line the owner or operator shall not allow the emissions of volatile organic compounds from Unit #4e in Table 1-1 to have less than a 96 percent overall control efficiency except when coating products with a volatile organic compound content less than 4% are used. Compliance with the overall control efficiency shall be determined on a monthly basis.

6.15 Restriction on water treatment chemicals for cooling towers

In accordance with ARSD 74:36:08:11, as referenced to 40 CFR §§ 63.402 and 63.404(b), no owner or operator shall use chromium based water treatment chemicals in an industrial process cooling tower. A cooling water sample residual hexavalent chromium concentration in excess of 0.5 parts per million by weight shall be considered a violation.

6.16 Air emission exceedances – emergency conditions

In accordance with ARSD 74:36:05:16.01(18), the Secretary will allow for an unavoidable emission exceedance of a technology-based emission limit if the exceedance is caused by an emergency condition and immediate action is taken by the owner or operator to restore the operations back to normal. An emergency condition is a situation arising from a sudden and reasonably unforeseeable event beyond the control of the source, including acts of God. An emergency shall not include an emission exceedance to the extent caused by improperly designed equipment, lack of preventive maintenance, careless or improper operation, or operator error. The owner or operator shall notify the Secretary within two working days of the incident and take all steps possible to eliminate the excess emissions. The notification must provide a description of the emergency, any steps taken to mitigate emissions, and corrective actions taken. If the

notification is submitted orally, a written report summarizing the information required by the notification shall be submitted and postmarked within 30 days of the oral notification.

6.17 Circumvention not allowed

In accordance with ARSD 74:36:05:47.01 and ARSD 74:36:08:03, as referenced to 40 CFR § 63.4(b), the owner or operator may not build, erect, install, or use any article, machine, equipment, or process that conceals or dilutes an air emission that would otherwise constitute noncompliance with a relevant standard. This includes but is not limited to the use of diluents to achieve compliance with a relevant standard based on the concentration of a pollutant in the effluent discharged to the atmosphere, the use of gaseous diluents to achieve compliance with a relevant standard for visible emissions, or operating a unit or control device that emits air pollutants from an opening other than the designed stack, vent, or equivalent opening.

6.18 Minimizing emissions

In accordance with ARSD 74:36:07:01, as referenced to 40 CFR § 60.11(d) and ARSD 74:36:08:03, as referenced to 40 CFR § 63.6(e)(1), the owner or operator shall at all times, when practicable, maintain and operate all permitted units, including associated air pollution control equipment and monitoring equipment, in a manner consistent with safety and good air pollution control practices for minimizing emissions. This includes periods of startup, shutdown, and malfunctions unless otherwise specified in this permit.

During a period of startup, shutdown, or malfunction, this general duty to minimize emissions requires the owner or operator to reduce emissions from the affected source to the greatest extent which is consistent with safety and good air pollution control practices. The general duty to minimize emissions during a period of startup, shutdown, or malfunction does not require the owner or operator to achieve emission levels that would be required by the applicable standard at other times if this is not consistent with safety and good air pollution control practices, nor does it require the owner or operator to make any further efforts to reduce emissions if levels required by the applicable standard have been achieved.

Determination of whether such operation and maintenance procedures are being used will be based on information available to the Secretary which 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. Malfunctions must be corrected as soon as practicable after their occurrence in accordance with the startup, shutdown, and malfunction plan. To the extent that an unexpected event arises during a startup, shutdown, or malfunction, an owner or operator must comply by minimizing emissions during such a startup, shutdown, and malfunction event consistent with safety and good air pollution control practices.

7.0 VOC Reductions – Unit #4d, #4e, #17, and #18

7.1 VOC emission reduction – Unit #4d and #4e

In accordance with ARSD 74:36:07:21, as referenced to 40 CFR § 60.442(a)(2)(i), the owner or operator shall achieve a 90 percent overall volatile organic compound emission reduction as

calculated over a calendar month for the M4 and M6 coater lines. In accordance with ARSD 74:36:07:21, as referenced to 40 CFR § 60.443(j), the owner or operator shall include the startup and shutdown emissions from the M4 and M6 coater lines when determining if the 90 percent overall volatile organic compound emission reduction is attained. Compliance with this permit condition shall be determined by permit conditions 7.6.

7.2 <u>VOC emission reduction – Unit #17 (24J hot melt coater)</u>

In accordance with ARSD 74:36:07:21, as referenced to 40 CFR § 60.442(a)(1), the owner or operator shall not cause the discharge into the atmosphere from Unit #17 of more than 0.20 kilograms of volatile organic compounds per kilogram of coating solids applied. Compliance is calculated on a weighted average basis for one calendar month.

In accordance with ARSD 74:36:07:21, as referenced to 40 CFR § 60.440(b), the owner or operator is exempt from the volatile organic compound emission limit in this permit condition if the input to Unit #17 is not greater than 45 megagrams (50 tons) of volatile organic compounds per 12-month period. Compliance with the material input limit shall be determined on a 12-month rolling total as referenced to permit condition 7.10.

7.3 <u>VOC emission reduction – Unit #18 (22J solventless coater)</u>

In accordance with ARSD 74:36:07:21, as referenced to 40 CFR § 60.442(a)(1), the owner or operator shall not cause the discharge into the atmosphere from Unit #18 of more than 0.20 kilograms of volatile organic compounds per kilogram of coating solids applied. Compliance is calculated on a weighted average basis for one calendar month.

In accordance with ARSD 74:36:07:21, as referenced to 40 CFR § 60.440(b), the owner or operator is exempt from the volatile organic compound emission limit in this permit condition if the input to Unit #18 is not greater than 45 megagrams (50 tons) of volatile organic compounds per 12-month period. Compliance with the material input limit shall be determined on a 12-month rolling total as referenced to permit condition 7.10.

7.4 <u>Calculate weighted average of VOC per coating solids applied</u>

In accordance with ARSD 74:36:07:21, as referenced to 40 CFR § 60.443(a), the owner or operator shall calculate the weighted average mass (kilograms) of volatile organic compounds per mass (kilogram) of coating solids applied each calendar month “G” for Unit #4d (M4 coater line) and #4e (M6 coater line).

If the input to Unit #17 exceeds 45 megagrams (50 tons) of volatile organic compounds per 12-month period, the owner or operator shall begin calculating the weighted average mass (kilograms) of volatile organic compounds per mass (kilogram) of coating solids applied each calendar month “G” to determine compliance with permit condition 7.2.

If the input to Unit #18 exceeds 45 megagrams (50 tons) of volatile organic compounds per 12-month period, the owner or operator shall begin calculating the weighted average mass (kilograms) of volatile organic compounds per mass (kilogram) of coating solids applied each calendar month “G” to determine compliance with permit condition 7.3.

“G” shall be determined by the following procedures:

1. Determine the weight fraction of organics and the weight fraction of solids of each coating applied by using 40 CFR, Part 60, Appendix A, Reference Method 24 or by the coating manufacturer’s formulation data; and
2. Compute the weighted average using Equation 7-1.

Equation 7-1 – Calculating weighted average VOC per coating solids applied

$$G = \frac{\sum_{i-1}^{n} W_{oi} M_{ci}}{\sum_{i-1}^{n} W_{si} M_{ci}}$$

Where:

- G = the calculated weighted average mass (kilograms) of volatile organic compounds per mass (kilograms) of coating solids applied each calendar month;
- M_{ci} = the total mass (kilograms) of each coating, i, applied during the calendar month as determined from records;
- W_{oi} = the weight fraction of organics applied of each coating, i, applied during a calendar month as determined from 40 CFR Part 60, Appendix A, Reference Method 24 or coating manufacturer's formulation data; and
- W_{si} = the weight fraction of solids applied of each coating, i, applied during a calendar month as determined from 40 CFR Part 60, Appendix A, Reference Method 24 or coating manufacturer's formulation data.

7.5 <u>Calculating overall VOC emission reduction – Unit #4d and #4e</u>

In accordance with ARSD 74:36:07:21, as referenced to 40 CFR § 60.443(b), the owner or operator shall calculate the required overall volatile organic compound emission reduction "R_q" for the Unit #4d (M4 coater line) and #4e (M6 coater line) each month. "R_q" shall be based on Equation 7-2.

Equation 7-2 – Overall volatile organic compound emission reduction

$$R_q = \frac{G - 0.20}{G} x100$$

Where:

- G = the calculated weighted average mass (kilograms) of volatile organic compounds per mass (kilograms) of coating solids applied each calendar month; and
- R_q = the required overall volatile organic compound emission reduction (in percent).

If "R_q" is less than or equal to 90 percent, then the required overall volatile organic compound emission reduction is "R_q". If the "R_q" is greater than 90 percent, then the required overall volatile organic compound emission reduction is 90 percent.

7.6 <u>Compliance with overall VOC emission reduction – Unit #4d and #4e</u>

In accordance with ARSD 74:36:07:21, as referenced to 40 CFR § 60.443(d), the owner or operator shall determine compliance with permit condition 7.1 each month. Monthly compliance will be determined by comparing the required overall monthly volatile organic compound emission reduction "R_q" as determined by permit condition 7.5 to the overall volatile organic compound emission reduction demonstrated with the most recent performance test. Compliance is achieved if the monthly required overall volatile organic compound emission reduction is less than or equal to the overall volatile organic compound emission reduction of the most recent performance test.

7.7 Compliance demonstration for Unit #4d and #4e

In accordance with ARSD 74:36:07:21, as referenced to 40 CFR § 60.443(i), the owner or operator shall determine compliance with permit condition 7.1 using the following procedures when volatile organic compound emissions from existing units are destroyed by the regenerative thermal oxidizer:

1. The owner or operator shall operate the regenerative thermal oxidizer during each performance test with both the existing units and the M4 and M6 coater lines connected;
2. The concentration of volatile organic compounds (in parts per million by volume) after the regenerative thermal oxidizer shall be determined by the most recent performance test following the procedures outlined in permit condition 7.13. This concentration shall be used in the calculation of compliance with permit condition 7.1;
3. The volumetric flow out of the regenerative thermal oxidizer attributable to the M4 and M6 coater lines shall be calculated by first determining the ratio of the volumetric flow entering the regenerative thermal oxidizer attributed to the M4 and M6 coater lines to the total volumetric flow entering the regenerative thermal oxidizer from both existing units (M1, M2, and M3 coating lines) and the M4 and M6 coater lines. The multiplication of this ratio by the total volumetric flow out of the regenerative thermal oxidizer yields the flow attributable to the M4 and M6 coater lines; and
4. Compliance is determined by the use of Equation 7-3.

7.8 Continuous temperature monitoring and records

In accordance with ARSD 74:36:07:21, as referenced to 40 CFR §§ 60.443(e) and 60.445(e), the owner or operator shall install, calibrate, maintain, and operate a monitoring device which continuously indicates and records the temperature of the exhaust gases from the regenerative thermal oxidizer when operational. The combustion temperature shall be monitored in the firebox of the regenerative thermal oxidizer or immediately downstream of the firebox before any substantial heat exchange occurs. The monitoring device shall have an accuracy of the greater of plus or minus 0.75 percent of the temperature being measured expressed in degrees Celsius or plus or minus 2.5 degrees Celsius. The owner or operator shall record all 3-hour periods during actual coating operations when the average temperature of the regenerative thermal oxidizer is more than 28 degrees Celsius (50 degrees Fahrenheit) below the average temperature determined by the most recent performance test and report these 3-hour periods in the quarterly report required in permit condition 7.14.

If the continuous monitoring device or recording equipment is not functional for more than one hour, the owner or operator shall cease operation of the M4 and M6 coater lines and discontinue using the M4 and M6 coater lines until the continuous monitor and recorder are operational.

If the temperature of the exhaust gases exiting the regenerative thermal oxidizer combustion chamber falls below the desired temperature by more than 28 degrees Celsius (50 degrees Fahrenheit) for more than one 3-hour period, the owner or operator shall perform the following steps:

1. The owner or operator will only operate the regenerative thermal oxidizer at or above the average temperature achieved during the most recent performance test that demonstrated compliance; and
2. Conduct a performance test on the regenerative thermal oxidizer to determine compliance at the lower operating temperature. The performance test shall be conducted within 60 days after the date the temperature dropped below the desired temperature by more than 28 degrees Celsius (50 degrees Fahrenheit) for more than one hour. If the performance test demonstrates compliance at the lower temperature, the temperature of the regenerative thermal oxidizer combustion chamber exhaust gases shall be maintained equal to or greater than the average temperature achieved during the performance test.

7.9 Hood or enclosure monitor for Unit #4d and #4e

In accordance with ARSD 74:36:07:21, as referenced to 40 CFR § 60.445(g), the owner or operator shall install, calibrate, maintain, and operate a monitoring device or monitoring devices that continuously indicates the hood or enclosure used to capture fugitive volatile organic compound emissions from the M4 and M6 coater lines are operating. This permit condition is not required if the owner or operator can demonstrate that the hood or enclosure system is interlocked with the M4 and M6 coater lines' oven recirculation air system.

7.10 Monthly coating records

In accordance with ARSD 74:36:07:21, as referenced to 40 CFR § 60.445(a) and (d), the owner or operator shall maintain a monthly record of all coatings used by Units #4d, #4e, #17, and #18. In addition, the owner or operator shall maintain the results of the reference test method specified in permit condition 7.11 or the manufacturer's formulation data used for determining the volatile organic compound content of these coatings.

The owner or operator shall calculate the amount of volatile organic compounds processed through Unit #17 and Unit #18 when the appropriate coater is operational on a monthly basis. A 12-month rolling total for Units #17 and #18 shall be calculated every month using that month's value and the previous 11 months' values. The volatile organic compound processed through Unit #17 and #18 shall be based on the amount of products used each month and the composition of the product based on the material safety data sheets, manufacturer supplied formulation data, EPA approved test method data, or a method approved by the Secretary.

7.11 Volatile organic compound content

In accordance with ARSD 74:36:07:21, as referenced to 40 CFR § 60.446(a), the owner or operator shall determine the volatile organic compound per unit of coating solids applied. The volatile organic compound per unit of coating solids applied shall be determined by 40 CFR Part 60, Appendix A, Reference Method 24 or by manufacturers' formulation data. In the event of any inconsistency between a Method 24 test and manufacturers' formulation data, the Method 24 test will govern. For Method 24, the coating sample must be a one liter sample taken into a one liter container at a point where the sample will be representative of the coating applied to the coater line web substrate.

7.12 Performance test methods

In accordance with ARSD 74:36:07:21, as referenced to 40 CFR § 60.446(b), if a performance test is required to demonstrate compliance with permit condition 7.1, the owner or operator shall use 40 CFR Part 60, Appendix A, Method 25 to determine the volatile organic compound concentration, in parts per million by volume, of each effluent gas stream entering and exiting the regenerative thermal oxidizer. The owner or operator shall use 40 CFR Part 60, Appendix A, Methods 1, 2, 3, and 4 to determine the sampling location, volumetric flow rate, molecular weight, and moisture of all sampled gas streams. For Method 25, the sampling time for each of the three runs must be at least one hour. The minimum sampling volume must be 0.003 dry standard cubic meters. The Secretary may approve shorter sampling times or smaller volumes, when necessitated by process variables or other factors.

7.13 Performance test procedures

In accordance with ARSD 74:36:07:21, as referenced to 40 CFR § 60.444(c), if a performance test is required to demonstrate compliance with permit condition 7.1, the owner or operator shall conduct the performance test as follows:

1. The performance of the regenerative thermal oxidizer shall be determined by averaging the results of the three test runs;
2. Determine prior to each test run the weighted average mass of volatile organic compound per mass of coating solids applied being used for the M4 and M6 coater lines. The weighted average shall be determined as specified in permit condition 7.4. In this application the quantities of W_{oi}, W_{si}, and M_{ci} shall be determined for the time period of each test run;
3. Calculate the required percent overall volatile organic compound emission reduction as specified in permit condition 7.5; and
4. Determine the percent overall volatile organic compound emission reduction of the regenerative thermal oxidizer by Equation 7-3 and the following procedures:
   a. The owner or operator shall construct the overall volatile organic compound emission reduction system so that all volumetric flow rates and total volatile organic compound emissions can be accurately determined by the applicable test methods and procedures;
   b. The owner or operator shall construct a temporary total enclosure around the M4 and M6 coating line applicator and flash off area during the performance test for the purpose of capturing fugitive volatile organic compound emissions. If a permanent total enclosure exists and the owner or operator demonstrates the enclosure totally captures fugitive volatile organic compound emissions, then no additional enclosure is required; and
   c. Compliance with permit condition 7.1 is demonstrated where the value of R is greater than or equal to the value of R_q calculated in accordance with permit condition 7.5.

Equation 7-3 – Overall volatile organic compound emission reduction

$$R = \frac{\sum_{i-1}^{n} Q_{bi} C_{bi} - \sum_{j-1}^{m} Q_{aj} C_{aj}}{\sum_{i-1}^{n} Q_{bi} C_{bi} + \sum_{k-1}^{p} Q_{fk} C_{fk}} x100$$

Where:

- C_{aj} = the concentration of volatile organic compound (carbon equivalent) in each gas stream, j, exiting the emission control device, in parts per million by volume;
- C_{bi} = the concentration of volatile organic compound (carbon equivalent) in each gas stream, i, entering the emission control device, in parts per million by volume;
- C_{fk} = the concentration of volatile organic compound (carbon equivalent) in each gas stream, k, emitted directly to the atmosphere, in parts per million by volume;
- Q_{aj} = the volumetric flow rate of each effluent gas stream, j, exiting the emission control device, in dry standard cubic meters per hour;
- Q_{bi} = the volumetric flow rate of each effluent gas stream, i, entering the emission control device, in dry standard cubic meters per hour;
- Q_{fk} = the volumetric flow rate of each effluent gas stream, k, emitted directly to the atmosphere, in dry standard cubic meters per hour; and
- R = the overall volatile organic compound emission reduction achieved for a calendar month (in percent).

7.14 Quarterly report for VOCs

In accordance with ARSD 74:36:07:21, as referenced to 40 CFR § 60.447(b) and (c), the owner or operator shall submit a quarterly report to the Secretary. The quarterly report shall contain the following information:

1. Name of facility, permit number, reference to this permit condition, identifying the submittal as a quarterly report and calendar dates covered in the reporting period;
2. The number of months in the reporting period that the volatile organic compound emission limit specified in permit condition 7.1, 7.2, and/or 7.3 was exceeded. If no such exceedances occurred, the owner or operator shall state this in the report;
3. The number of 3-hour periods during which the average temperature of the regenerative thermal oxidizer is more than 28 degrees Celsius (50 degrees Fahrenheit) below the average temperature determined by the most recent performance test. If no exceedances occur, the owner or operator shall state this in the report; and
4. Identify the average temperature determined by the most recent performance test.

Quarterly reports must be postmarked no later than 30 days after the end of the reporting period.

8.0 Demonstrating Compliance – Capture and Control Device System

8.1 Compliance using a capture and control device system

In accordance with ARSD 74:36:08:29, as referenced to 40 CFR § 63.3320(c), if the owner or operator demonstrates compliance with permit condition 6.12 using a capture and control device system, the owner or operator must demonstrate compliance with permit condition 8.2, 8.3, 8.4, or 8.5 and comply with the applicable permit conditions in this chapter.

8.2 Demonstrate 95 percent control efficiency

In accordance with ARSD 74:36:08:29, as referenced to 40 CFR § 63.3370(a)(5)(i) and (e)(2), the owner or operator shall demonstrate compliance with permit condition 6.12(1) by operating a

capture and control device system with an overall organic hazardous air pollutant control efficiency of at least 95 percent for each month. Compliance is demonstrated by the following procedures in permit condition 8.6.

8.3 <u>Demonstrate overall organic HAP rate of coating solids</u>

In accordance with ARSD 74:36:08:29, as referenced to 40 CFR § 63.3370(a)(5)(ii), (a)(6)(i), and (f), the owner or operator shall demonstrate compliance with permit condition 6.12(3) by limiting the overall organic hazardous air pollutant emission rate to no more than 0.20 kilograms organic hazardous air pollutant emitted per kilograms of coating solids applied as determined on a monthly average "as applied" basis. Compliance is demonstrated by the following procedures in permit condition 8.6.

8.4 <u>Demonstrate overall organic HAP rate of coating materials</u>

In accordance with ARSD 74:36:08:29, as referenced to 40 CFR § 63.3370(a)(5)(iii), (a)(6)(ii), and (g), the owner or operator shall demonstrate compliance with permit condition 6.12(2) by limiting the overall organic hazardous air pollutant emission rate to no more than 0.04 kilograms organic hazardous air pollutant emitted per kilograms of coating material applied as determined on a monthly average "as applied" basis. Compliance is demonstrated by the following procedures in permit condition 8.6.

8.5 <u>Monthly organic HAP emission limit</u>

In accordance with ARSD 74:36:08:29, as referenced to 40 CFR § 63.3370(a)(5)(iv), (a)(6)(iii), and (h), the owner or operator shall demonstrate compliance with permit condition 6.12 by operating a capture and control device system and limit the monthly organic hazardous air pollutant emissions to less than the allowable emissions as calculated in accordance with permit condition 8.8. Compliance is demonstrated by the following procedures in permit condition 8.6.

8.6 <u>Calculating organic HAP emissions</u>

In accordance with ARSD 74:36:08:29, as referenced to 40 CFR § 63.3370(n)(3) and (4), the owner or operator shall calculate organic hazardous air pollutant emissions according to the following procedures:

1. To demonstrate compliance through performance tests of capture and control device efficiency, continuous monitoring of capture system, and continuous parameter monitoring systems for the regenerative thermal oxidizer used to control emissions from one or more web coatings, the owner or operator must:
   a. Monitor the operating parameter(s) in accordance with permit condition 8.11 to ensure control device efficiency;
   b. For each capture system delivering emissions to the regenerative thermal oxidizer, monitor the operating parameter(s) established in accordance with permit condition 8.11; and
   c. Determine the organic hazardous air pollutant emissions from those web coating lines served by each capture system delivering emission to the regenerative thermal oxidizer in accordance with permit condition 8.7.
2. For uncontrolled coating lines, the owner or operator shall determine the organic hazardous air pollutant applied on those web coating lines using Equation 9-7. The organic hazardous air

pollutant emitted from an uncontrolled web coating line is equal to the organic hazardous air pollutant applied on that web coating line;

3. Convert the information obtained in paragraph (1) and (2) of this permit condition into units of the selected compliance option in permit condition 8.2, 8.3, 8.4, or 8.5 using the appropriate calculation procedures:
   a. Calculate the organic hazardous air pollutant emissions for the month by summing all organic hazardous air pollutant emissions calculated according to paragraph (1) and (2) of this permit condition;
   b. If demonstrating compliance on the basis of organic hazardous air pollutant emission rate based on coating solids applied or emission of less than the calculated allowable organic hazardous air pollutant, the owner or operator must determine the coating solids content of each coating material applied during the month following the procedures in permit condition 9.5;
   c. Calculate the organic hazardous air pollutant emission rate based on coating solids applied for each month using Equation 8-1;

Equation 8-1 – Organic hazardous air pollutant emission rate based on coating solids applied

$$L = \frac{H_e}{\sum_{i=1}^{p} C_{si} M_i + \sum_{j=1}^{q} C_{sij} M_{ij}}$$

Where:

- L = Mass organic hazardous air pollutant emitted per mass of coating solids applied, kilograms/kilograms;
- H_e = Total monthly organic hazardous air pollutant emitted, kilograms;
- p = Number of different coating materials applied in a month;
- C_{si} = Coating solids content of coating material, i, expressed as a mass fraction, kilograms/kilograms;
- M_i = Mass of “as purchased” coating material, i, applied in a month, kilograms;
- q = Number of different materials added to the coating material;
- C_{sij} = Coating solids content of material, j, added to “as purchased” coating material, i, expressed as a mass-fraction, kilograms/kilograms; and
- M_{ij} = Mass of material, j, added to “as purchased” coating material, i, in a month, kilograms.

   d. Calculate the organic hazardous air pollutant emission rate based on material applied using Equation 8-2;

Equation 8-2 – Organic hazardous air pollutant based on materials applied

$$S = \frac{H_e}{\sum_{i=1}^{p} M_i + \sum_{j=1}^{q} M_{ij}}$$

Where:

- S = Mass organic hazardous air pollutant emitted per mass of material applied, kilograms/kilograms;
- H_e = Total monthly organic hazardous air pollutant emitted, kilograms;
- p = Number of different coating materials applied in a month;
- M_i = Mass of "as purchased" coating material, i, applied in a month, kilograms;
- q = Number of different materials added to the coating material; and
- M_{ij} = Mass of material, j, added to "as purchased" coating material, i, in a month, kilograms.

4. Compliance with permit condition 6.12 is demonstrated for the month if all operating parameters required to be monitored under paragraph (1) and (2) of this permit condition were maintained at the values established in accordance with permit conditions 8.10 and 9.9; and
5. The owner or operator complies with one of the following:
   a. The total mass of organic hazardous air pollutants emitted based on coating solids applied is no more than 0.20 kilograms organic hazardous air pollutants per kilogram coating solids applied;
   b. The total mass of organic hazardous air pollutants emitted based on material applied is no more than 0.04 kilograms organic hazardous air pollutants per kilogram material applied;
   c. The total mass of organic hazardous air pollutants emitted during the month is less than the calculated allowable organic hazardous air pollutant as determined using permit condition 8.8; or
   d. The total mass of organic hazardous air pollutants emitted was not more than five percent of the total mass of organic hazardous air pollutants applied for the month. The total mass of organic hazardous air pollutants applied by the affected source in the month must be determined using Equation 9-7.

8.7 <u>Determine organic HAP emissions from intermittent and never controlled work stations</u>

In accordance with ARSD 74:36:08:29, as referenced to 40 CFR § 63.3370(k)(1)(i) through (iii), and (v) and (o), the owner or operator shall demonstrate compliance using a regenerative thermal oxidizer by performing the following procedures:

1. Demonstrate initial compliance through performance tests of capture efficiency and control device efficiency and continuing compliance through continuous monitoring of capture system and control device operating parameters as specified below:
   a. Determine the regenerative thermal oxidizer destruction efficiency;
   b. Determine the capture system capture efficiency in accordance with permit condition 8.12;
   c. Whenever a web coating line is operated, continuously monitor the operating parameters established in accordance with permit condition 8.10 to ensure capture and control efficiency;
   d. If demonstrating compliance on the basis of organic hazardous air pollutant emission rate based on coating solids applied or emission of less than the calculated allowable organic hazardous air pollutant, determine the coating solids content of each coating material applied during the month following the procedure in permit condition 9.5; and

e. Determine organic hazardous air pollutant emissions for intermittently controlled and never controlled work stations by:
   i. Determine the sum of the mass of all coating materials "as applied" on intermittently controlled work stations operating in bypass mode and the mass of all coating materials "as applied" on never controlled work stations during the month;
   ii. Determine the sum of the mass of all coating materials "as applied" on intermittently controlled work stations operating in a controlled mode and the mass of all coating materials applied on always controlled work stations during the month; and
   iii. Calculate the organic hazardous air pollutants emitted during the month using Equation 8-3.

Equation 8-3 – Calculating organic hazardous air pollutant emissions

$$H_e = \left[\sum_{i=1}^{p} M_{Ci} C_{ahi}\right]\left[1 - \frac{R}{100}\right] + \left[\sum_{i=1}^{p} M_{Bi} C_{ahi}\right] - M_{vret}$$

Where:

- H_e = Total monthly organic hazardous air pollutants emitted, kilogram;
- p = Number of different coating materials applied in a month;
- M_{ci} = Sum of the mass of coating material, i, "as applied" on intermittently controlled work stations operating in controlled mode and the mass of coating material, i, "as applied" on always controlled work stations, in a month, kilogram;
- C_{ahi} = Monthly average, "as applied", organic hazardous air pollutant content of coating material, i, expressed as a mass fraction, kilogram/kilogram;
- R = Overall organic hazardous air pollutant control efficiency, percent;
- M_{Bi} = Sum of the mass of coating material, i, "as applied" on intermittently controlled work stations operating in bypass mode and the mass of coating material, i, "as applied" on never controlled work stations, in a month, kilogram;
- C_{ahi} = Monthly average, "as applied", organic hazardous air pollutant content of coating material, i, expressed as a mass fraction, kilogram/kilogram; and
- M_{vret} = Mass of volatile matter retained in the coated web after curing or drying, or otherwise not emitted to the atmosphere, kilogram. The value of this term will be zero in all cases except where the owner or operator choose to take into account the volatile matter retained in the coated web or otherwise not emitted to the atmosphere as determined by permit condition 8.10.

8.8 <u>Determining monthly allowable organic HAP emissions</u>

In accordance with ARSD 74:36:08:29, as referenced to 40 CFR § 63.3370(l), the owner or operator shall use this permit condition to determine the monthly allowable organic hazardous air pollutant emissions for demonstrating compliance with permit condition 8.5 and 9.9. The owner or operator shall determine the amount of coating material applied at greater than or equal to 20 mass percent coating solids and the amount of coating material applied at less than 20 mass percent coating solids. The allowable organic hazardous air pollutant limit is then calculated based on coating material applied at greater than or equal to 20 mass percent coating solids if complying with 0.2 kilogram organic hazardous air pollutant per kilogram coating solids or coating material

applied at less than 20 mass percent coating solids if complying with 4 mass percent organic hazardous air pollutant. The calculating procedures are as follows:

1. Determine the "as purchased" mass of each coating material applied each month;
2. Determine the "as purchased" coating solids content of each coating material applied each month in accordance with permit condition 9.9;
3. Determine the "as purchased" mass fraction of each coating material which was applied at 20 mass percent or greater coating solids content on an "as applied" basis;
4. Determine the total mass of each solvent, diluent, thinner, or reducer added to coating materials which were applied at less than 20 mass percent coating solids content on an "as applied" basis each month; and
5. Calculate the monthly allowable organic hazardous air pollutant emissions using Equation 8-4.

Equation 8-4 – Calculate monthly allowable organic hazardous air pollutant emissions

$$H_a = 0.20\left[\sum_{i=1}^{p} M_i G_i C_{si}\right] + 0.04\left[\sum_{i=1}^{p} M_i (1 - G_i) + \sum_{j=1}^{q} M_{L_j}\right]$$

Where:

- H_a = Monthly allowable organic hazardous air pollutant emissions, kilograms;
- p = Number of different coating materials applied in a month;
- M_i = Mass of "as purchased" coating material, i, applied in a month, kilograms;
- G_i = Mass fraction of each coating material, i, which was applied at 20 mass percent or greater coating solids content, on an "as applied" basis, kilograms/kilograms;
- C_{si} = Coating solids content of coating material, i, expressed as a mass fraction, kilograms/kilograms;
- q = Number of different materials added to the coating material; and
- M_{Lj} = Mass of non-coating-solids-containing coating materials which were applied at less than 20 mass percent coating solids content, on an "as applied" basis, in a month, kilograms.

8.9 <u>Operating limits – regenerative thermal oxidizer and capture systems</u>

In accordance with ARSD 74:36:08:29, as referenced to 40 CFR § 63.3321(a), the owner or operator shall meet the following operating limits for the regenerative thermal oxidizer and capture systems:

1. The average combustion temperature of the regenerative thermal oxidizer in any 3-hour period must not fall below the combustion temperature limit established in permit condition 8.12. The combustion temperature data shall be collected in accordance with permit condition 8.11(1) and (2) and the data shall be reduced to 3-hour block averages; and
2. The owner or operator shall submit a monitoring plan that identifies operating parameters to be monitored in accordance with permit condition 8.11 and conduct the monitoring required in the monitoring plan.

The average combustion temperature and operating parameters shall be met at all times once the operating limits have been established during the initial performance test or subsequent performance tests that demonstrate compliance with permit condition 6.12(1).

8.10 <u>Bypass and coating use monitoring</u>

In accordance with ARSD 74:36:08:29, as referenced to 40 CFR § 63.3350(a)(1), (b), and (c), the owner or operator shall monitor bypasses of the regenerative thermal oxidizer and the mass of each coating material applied at web coating lines with intermittently controlled work stations during any such bypass. The owner or operator must demonstrate that any coating material applied on a never controlled work station or an intermittently controlled work station operated in bypass mode is allowed in accordance with permit condition 8.6 and 8.7. The bypass monitoring must be conducted using at least one of the following procedures for each work station and associated dryer:

1. The owner or operator shall install, calibrate, maintain, and operate according to the manufacturer' specifications a flow control position indicator that provides a record indicating if the exhaust stream from each intermittently controlled coater line was directed to the regenerative thermal oxidizer or was diverted from the regenerative thermal oxidizer. The time and flow control position must be recorded at least once per hour as well as every time the flow direction is changed. A flow control position indicator must be installed at the entrance to any bypass line that could divert the exhaust stream away from the regenerative thermal oxidizer to the atmosphere;
2. The owner or operator shall secure any bypass line valve in the closed position with a car-seal or a lock-and-key type configuration. A visual inspection of the seal or closure mechanism must be performed at least once every month to ensure that the valve or damper is maintained in the closed position, and the exhaust stream is not diverted through the bypass line
3. The owner or operator shall ensure that any bypass line valve or damper is in the closed position through continuous monitoring of valve position when the intermittently controlled coater line is in operation. The monitoring system must be inspected at least once every month to verify that the monitor will indicate valve position; and/or
4. The owner or operator shall use an automatic shutdown system in which the web coating line is stopped when flow is diverted away for the regenerative thermal oxidizer to any bypass line when the regenerative thermal oxidizer is in operation. The automatic system must be inspected at least once every month to verify that it will detect diversion of flow and would shut down operations in the event of such a diversion.

8.11 <u>Continuous parameter monitoring system</u>

In accordance with ARSD 74:36:08:29, as referenced to 40 CFR § 63.3350(a)(3) and (4), (b), (e) and (f), the owner or operator shall install, operate, and maintain a continuous parameter monitoring system that meets the following requirements:

1. Install, calibrate, maintain, and operate temperature monitoring equipment according to the manufacturer's specifications. The calibration of the chart recorder, data logger, or temperature indicator must be verified every three months or the chart recorder, data logger, or temperature indicator must be replaced. In addition, the owner or operator must replace the

chart recorder, data logger, or temperature indicator if the equipment cannot be calibrated properly;

2. Install, calibrate, operate, and maintain a continuous temperature recorder. The continuous temperature recorder must have an accuracy of ±1 percent of the temperature being monitored in degrees Celsius, or ±1 degree Celsius, whichever is greater. The thermocouple or temperature sensor must be installed in the combustion chamber at a location in the combustion zone;
3. Each continuous parameter monitoring system must complete a minimum of one cycle of operation for each successive 15-minute period. A minimum of four equally spaced successive cycles of continuous parameter monitoring system operation is required for a valid hour of data;
4. Valid hourly data is required from at least 90 percent of the hours during which the process operated;
5. The hourly average of all recorded readings must be determined in the following manner:
   a. To calculate a valid hourly value, at least three of four equally spaced data values from the hour from a continuous monitoring system that is not out-of-control; or
   b. Provided all of the reading recorded in accordance with section (4) of this permit condition clearly demonstrate continuous compliance with the standard that applies, then the hourly average of all the reading is not required.
6. Determine the rolling 3-hour average of all recorded readings for each operating period. To calculate the average for each 3-hour averaging period, at least two of the three of the hourly average for that period using on average values that are based on valid data;
7. Record the results of each inspection, calibration, and validation check of the continuous parameter monitoring system;
8. At all time, the monitoring system must be maintained in proper working order including, but not limited to, maintaining necessary parts for routine repairs of the monitoring equipment;
9. Except for monitoring malfunctions, associated repairs, or required quality assurance or control activities, including calibration checks, or required zero and span adjustment, all monitoring shall occur at all times that the unit is operating. Data recorded during monitoring malfunctions, associated repairs, out-of-control periods, or required quality assurance or control activities shall not be used for purposes of calculating emission concentration and percent reductions. All valid data collected during all other periods shall be used in assessing compliance of the control device and associated control system. A monitoring malfunction is any sudden, infrequent, not reasonably preventable failure of the monitoring system to provide valid data. Monitoring failures that are caused in part by poor maintenance or careless operation are not malfunctions;
10. Any averaging period for which not valid monitoring data and such data are required constitutes a deviation and the owner or operator must notify the Secretary in accordance with permit condition 5.10; and
11. A site specific monitoring plan shall be developed and maintained for each capture system that meets the following requirements:
    a. Identify the operating parameter to be monitored to ensure that the capture efficiency determined during the initial compliance test is maintained;
    b. Explain why this parameter is appropriate for demonstrating ongoing compliance; and
    c. Identify the specific monitoring procedures;

d. The monitoring plan must be specify the operating parameter value or range of values that demonstrate compliance with the emission standard in permit condition 6.12(1). The specified operating parameter value or range of values must represent the condition present when the capture system is being properly operated and maintained;
e. All capture system monitoring must be conducted according to the monitoring plan;
f. Any deviation from the operating parameter value or range of values which are monitored according to the monitoring plan will be considered a deviation from the operating limit and must be reported to the Secretary in accordance with permit condition 5.10; and
g. The monitoring plan must be reviewed and updated on an annual basis.

8.12 Regenerative thermal oxidizer operating limits

In accordance with ARSD 74:36:08:29, as referenced to 40 CFR § 63.3360(e)(3), the owner or operator shall establish the operating limits for the regenerative thermal oxidizer during the performance test. The owner or operator must monitor and record the combustion temperature at least once every 15 minutes during each of the test runs. The combustion temperature shall be monitored in the firebox of the regenerative thermal oxidizer or immediately downstream of the firebox before any substantial heat exchange occurs. The owner or operator shall use the data collected during the performance test to calculate and record the average combustion temperature maintained during the performance test. The average combustion temperature is the minimum operating limit for the regenerative thermal oxidizer.

8.13 Capture efficiency determination

In accordance with ARSD 74:36:08:29, as referenced to 40 CFR § 63.3360(f), the owner or operator shall determine the capture efficiency using the following procedures:

1. The owner or operator may assume that the capture efficiency equals 100 percent if the capture system is a permanent total enclosure. The owner or operator must confirm that the capture system is a permanent total enclosure by demonstrating that it meets the requirements of Section 6 of 40 CFR Part 51, Appendix M, Method 204 and that all exhaust gases from the enclosure are delivered to a control device;
2. The owner or operator may determine the capture efficiency according to the protocols for testing with temporary total enclosures that are specified in 40 CFR Part 51, Appendix M, Methods 204 and 204A through F. The owner or operator may exclude never controlled work stations from such capture efficiency determinations; or
3. The owner or operator may use any capture efficiency protocol and test methods that satisfy the criteria of either the Data Quality Objective or the Lower Confidence Limit approach as described in 40 CFR Part 63, Subpart KK, Appendix A. The owner or operator may exclude never controlled work stations from such capture efficiency determinations.

9.0 Demonstrating Compliance – Mass of Coating Material or Coating Solids

9.1 Demonstrating compliance with permit condition 6.12(2) or (3)

In accordance with ARSD 74:36:08:29, as referenced to 40 CFR § 63.3320(c), if the owner or operator decides to demonstrate compliance with permit condition 6.12 by maintaining organic

hazardous air pollutant emissions to no more than four percent of the mass of coating material applied for each month or no more than 20 percent of the mass of coating solids applied for each month, the owner or operator must comply with all the permit conditions in this chapter.

9.2 Determine organic hazardous air pollutant content "as purchased"

In accordance with ARSD 74:36:08:29, as referenced to 40 CFR § 63.3360(a)(1) and (c)(1), (2), and (3), the owner or operator shall determine the organic hazardous air pollutant mass fraction of each coating material "as purchased" using one of the following procedures:

1. The owner or operator may test the coating material in accordance with 40 CFR Part 63, Appendix A, Method 311. Method 311 may be performed by the manufacturer of the coating material and the results provided to the owner or operator. The organic hazardous air pollutant content must be calculated according to the following criteria:
   a. Include each organic hazardous air pollutant determined to be present at greater than or equal to 0.1 mass percent for Occupational Safety and Health Administration (OSHA) defined carcinogens as specified in 29 CFR § 1910.1200(d)(4) and greater than or equal to 1.0 mass percent for other organic hazardous air pollutant compounds;
   b. Express the mass fraction of each organic hazardous air pollutant included in (a) as a value truncated to four places after the decimal point; and
   c. Calculate the total mass fraction of organic hazardous air pollutant in the tested material by summing the counted individual organic hazardous air pollutant mass fractions and truncating the result to three places after the decimal point;
2. The owner or operator may test the coatings by determining the volatile organic content as mass fraction of nonaqueous volatile matter and use it as a substitute for organic hazardous air pollutant using 40 CFR Part 60, Appendix A, Method 24. The Method 24 determination may be performed by the manufacturer of the coating and the results provided to the owner or operator;
3. The owner or operator may use the formulation data to determine the organic hazardous air pollutant mass fraction of a coating material. Formulation data may be provided to the owner or operator by the manufacturer of the material. In the event of an inconsistency between Method 311 test data and the owner's or operator's formulation data, and the Method 311 test value is higher, the Method 311 data will govern. Formulation data may be used provided that the information represents all organic hazardous air pollutant present at a level equal to or greater than 0.1 percent for OSHA defined carcinogens as specified in 29 CFR § 1910.1200(d)(4) and equal to or greater than 1.0 percent for other organic hazardous air pollutant compounds in any raw material used; or
4. The owner or operator may submit an alternative test method for determining the organic hazardous air pollutant mass fraction of a coating material. The alternative test method must be approved in writing by EPA in accordance with 40 CFR § 63.7(f) and the Secretary. The recovery efficiency of the test method must be determined for all of the target organic hazardous air pollutants and a correction factor, if necessary, must be determined and applied.

9.3 Determining "as purchased" volatile organic content and coating solids content

In accordance with ARSD 74:36:08:29, as referenced to 40 CFR § 63.3360(a)(1) and (d)(1) and (2), the owner or operator shall determine the volatile organic content and coating solids content of each coating material "as purchased" using one of the following procedures:

1. The owner or operator may determine the volatile organic content and coating solids mass fraction of each coating applied using 40 CFR Part 60, Appendix A, Method 24. The Method 24 determination may be performed by the manufacturer of the coating and the results provided to the owner or operator. If the values cannot be determined using Method 24, the owner or operator must submit an alternative technique for determining these values that must be approved by EPA and the Secretary; or
2. The owner or operator may use the formulation data to determine the volatile organic content and the coating solids content of a coating material. Formulation data may be provided to the owner or operator by the manufacturer of the material. In the event of an inconsistency between Method 24 test data and the owner's or operator's formulation data, and the Method 24 test value is higher, the Method 24 data will govern.

9.4 Calculate "as applied" organic hazardous air pollutant mass fraction

In accordance with ARSD 74:36:08:29, as referenced to 40 CFR § 63.3360(c)(4), the owner or operator shall calculate the "as applied" organic hazardous air pollutant mass fraction of each coating material using one of the following procedures:

1. If the "as purchased" coating material is applied to the web without any solvent or other material added, then the "as applied" organic hazardous air pollutant mass fraction is equal to the "as purchased" organic hazardous air pollutant fraction; or
2. If the "as purchased" coating materials are reduced, thinned, or diluted prior to application, the "as applied" organic hazardous air pollutant mass fraction shall be calculated using Equation 9-1.

Equation 9-1 – Calculating "as applied" organic hazardous air pollutant mass fraction

$$C_{ahi} = \frac{\left(C_{hi} M_i + \sum_{j=1}^{q} C_{hij} M_{ij} \right)}{M_i + \sum_{j=1}^{q} M_{ij}}$$

Where:

- C_{ahi} = Monthly average, "as applied", organic hazardous air pollutant content of coating material, i, expressed as a mass fraction, kilograms/kilograms;
- C_{hi} = Organic hazardous air pollutant content of coating material, i, "as purchased", expressed as a mass fraction, kilograms/kilograms;
- M_i = Mass of "as purchased" coating material, i, applied in a month, kilograms.
- q = number of different materials add to the coating material;
- C_{hij} = Organic hazardous air pollutant content of material, j, added to "as purchased" coating material, i, expressed as mass fraction, kilograms/kilograms; and

- M_{ij} = Mass of material, j, added to "as purchased" coating material, i, in a month, kilograms.

9.5 Calculate "as applied" volatile organic content and coating solids content

In accordance with ARSD 74:36:08:29, as referenced to 40 CFR § 63.3360(d)(4), the owner or operator shall calculate the volatile organic content and coating solids content of each coating material "as applied" using one of the following procedures:

1. If the "as purchased" coating material is applied to the web without any solvent or other material added, then the "as applied" volatile organic content and coating solids content are equal to the "as purchased" volatile organic content and coating solids content; or
2. If the "as purchased" coating materials are reduced, thinned, or diluted prior to application, the "as applied" volatile organic content shall be calculated using Equation 9-2 and the "as applied" coating solids content shall be calculated using Equation 9-3.

Equation 9-2 – Calculating "as applied" volatile organic content

$$C_{avi} = \frac{\left(C_{vi} M_i + \sum_{j=1}^{q} C_{vij} M_{ij} \right)}{M_i + \sum_{j=1}^{q} M_{ij}}$$

Where:

- C_{avi} = Monthly average, as applied, volatile organic content of coating material, i, expressed as a mass fraction, kilograms/kilograms;
- C_{vi} = Volatile organic content of coating material, i, expressed as a mass fraction, kilograms/kilograms;
- M_i = Mass of as purchased coating material, i, applied in a month, kilograms;
- q = number of different materials added to the coating material;
- C_{vij} = Volatile organic content of material, j, added to as purchased coating material, i, expressed as mass fraction, kilograms/kilograms; and
- M_{ij} = Mass of material, j, added to as purchased coating material, i, in a month, kilograms.

Equation9-3 – Calculating "as applied" coatings solid content

$$C_{asi} = \frac{\left(C_{si} M_i + \sum_{j=1}^{q} C_{sij} M_{ij} \right)}{M_i + \sum_{j=1}^{q} M_{ij}}$$

Where:

- C_{asi} = Monthly average, as applied, coating solids content of coating material, i, expressed as a mass fraction, kilograms/kilograms;
- C_{si} = Coating solids content of coating material, i, as purchased, expressed as a mass fraction, kilograms/kilograms;
- M_i = Mass of as purchased coating material, i, applied in a month, kilograms;

- q = Number of different materials added to the coating material;
- C_{sij} = Coating solids content of material, j, added to as purchased coating material, i, expressed as mass fraction, kilograms/kilograms; and
- M_{ij} = Mass of material, j, added to as purchased coating material, i, in a month, kilograms.

9.6 <u>Volatile matter retained in the coated web or otherwise not emitted</u>

In accordance with ARSD 74:36:08:29, as referenced to 40 CFR § 63.3360(g), the owner or operator may choose to take into account the mass of volatile matter retained in the coated web after curing or drying or otherwise not emitted to the atmosphere. If the owner or operator chooses this option, the owner or operator must develop a testing protocol to determine the mass of volatile matter retained in the coated web or otherwise not emitted to the atmosphere and submit this protocol to EPA and the Secretary for approval. This protocol must be submitted with the site-specific test plan. If compliance is demonstrated by permit condition 9.8 or 9.9, then the test protocol must determine the mass of organic hazardous air pollutants retained in the coated web or otherwise not emitted to the atmosphere. Otherwise, compliance must be demonstrated by using the volatile organic matter content as a surrogate for the hazardous air pollutant content of the coatings.

9.7 <u>Demonstrating compliance using "as purchased" compliant coating materials</u>

In accordance with ARSD 74:36:08:29, as referenced to 40 CFR § 63.3370(a)(1) and (b), the owner or operator may demonstrate compliance with the emission limits in permit condition 6.12(2) or (3) using "as purchased" compliant coating materials. The owner or operator is in compliance if each coating material applied during the month contains no more than 0.04 mass fraction organic hazardous air pollutants or 0.2 kilograms organic hazardous air pollutant per kilogram of coating solids on an "as purchased" basis. The owner or operator shall determine the organic hazardous air pollutant content of each "as purchased" coating material using the methods in permit conditions 9.2.

9.8 <u>Demonstrate compliance using "as applied" compliant coating materials</u>

In accordance with ARSD 74:36:08:29, as referenced to 40 CFR § 63.3370(a)(2) and (c), the owner or operator may demonstrate compliance with the emission limits in permit condition 6.12(2) or (3) using "as applied" compliant coating materials. The owner or operator must demonstrate compliance with "as applied" coating materials by one of the following methods:

1. Each coating material applied shall not exceed 0.04 kilograms organic hazardous air pollutants per kilogram coating material as determined in accordance with following methods:
   a. Determine the organic hazardous air pollutant content or volatile organic content of each coating material applied on an "as purchased" basis in accordance with permit conditions 9.2;
   b. Calculate the "as applied" organic hazardous air pollutant content of each coating using permit condition 9.4; or
   c. Calculate the "as applied" volatile organic content of each coating material using permit condition 9.5;
2. Each coating material "as applied" shall not exceed 0.2 kilograms organic hazardous air pollutants per kilogram coating solids as determined in accordance with the following methods:

a. Determine the "as applied" coating solids content of each coating material using permit condition 9.5; or
b. Calculate the "as applied" organic hazardous air pollutant to coating solids ratio using Equation 9-4.

Equation 9-4 – Calculating "as applied" organic hazardous air pollutant coating solids ratio

$$H_{si} = \frac{C_{ahi}}{C_{asi}}$$

Where:

- H_{si} = As applied, organic hazardous air pollutant to coating solids ratio of coating material, i;
- C_{ahi} = Monthly average, as applied, organic hazardous air pollutant content of coating material, i, expressed as a mass fraction, kilograms/kilograms.
- C_{asi} = Monthly average, as applied, coating material, i, expressed as a mass fraction, kilograms/kilograms.

3. The monthly average "as applied" organic hazardous air pollutant content of all coating materials applied shall not exceed 0.04 kilograms organic hazardous air pollutants per kilogram coating material applied as determined by Equation 9-5; or

Equation 9-5 – Monthly average organic hazardous air pollutant content

$$H_L = \frac{\sum_{i=1}^{p} C_{hi} M_i + \sum_{j=1}^{q} C_{hij} M_{ij} - M_{vret}}{\sum_{i=1}^{p} M_i + \sum_{j=1}^{q} M_{ij}}$$

Where:

- H_L = Monthly average, as applied, organic hazardous air pollutant content of all coating materials applied, expressed as kilograms organic hazardous air pollutant per kilograms of coating material applied, kilograms/kilograms;
- p = Number of different coating materials applied in a month;
- C_{hi} = Organic hazardous air pollutant content of coating materials, i, as purchased, expressed as a mass fraction, kilograms/kilograms.
- M_i = Mass of as purchased coating material, i, applied in a month, kilograms;
- q = Number of different materials added to the coating material;
- C_{hij} = Organic hazardous air pollutant content of material, j, added to as purchased coating material, i, expressed as a mass fraction, kilograms/kilograms;
- M_{ij} = Mass of material, j, added to as purchased coating material, i, in a month, kilograms; and
- M_{vret} = Mass of volatile matter retained in the coated web after curing or drying, or otherwise not emitted to the atmosphere, kilograms. The value of this term will be zero in all cases except where the owner or operator chooses to take into account the volatile matter retained in the coated web or otherwise not emitted to the atmosphere.

4. The monthly average "as applied" organic hazardous air pollutant content on the basis of coating solids applied of all coating materials applied shall not exceed 0.2 kilograms organic hazardous air pollutants per kilogram coating solids as determined by Equation 9-6.

Equation 9-6 – Monthly average organic hazardous air pollutant coating solids

$$H_S = \frac{\sum_{i=1}^{p} C_{hi} M_i + \sum_{j=1}^{q} C_{hij} M_{ij} - M_{vret}}{\sum_{i=1}^{p} C_{Si} M_i + \sum_{j=1}^{q} C_{Sij} M_{ij}}$$

Where:

- H_S = Monthly average, "as applied", organic hazardous air pollutant to coating solids ratio, kilograms organic hazardous air pollutant per kilograms coating solids applied;
- p = Number of different coating materials applied in a month;
- C_{hi} = Organic hazardous air pollutant content of coating materials, i, "as purchased", expressed as a mass fraction, kilograms/kilograms;
- M_i = Mass of "as purchased" coating material, i, applied in a month, kilograms;
- q = Number of different materials added to the coating material;
- C_{hij} = Organic hazardous air pollutant content of material, j, added to "as purchased" coating material, i, expressed as a mass fraction, kilograms/kilograms;
- M_{ij} = Mass of material, j, added to "as purchased" coating material, i, in a month, kilograms;
- M_{vret} = Mass of volatile matter retained in the coated web after curing or drying, or otherwise not emitted to the atmosphere, kilograms. The value of this term will be zero in all cases except where the owner or operator chooses to take into account the volatile matter retained in the coated web or otherwise not emitted to the atmosphere;
- C_{Si} = Coating solids content of coating material, i, expressed as a mass fraction, kilograms/kilograms; and
- $C_S$ij = Coating solids content of material, j, added to "as purchased" coating material, i, expressed as a mass fraction, kilograms/kilograms.

9.9 <u>Demonstrate compliance using monthly allowable organic hazardous air pollutant applied</u>

In accordance with ARSD 74:36:08:29, as referenced to 40 CFR § 63.3370(a)(3) and (d), the owner or operator may demonstrate compliance with the emission limits in permit condition 6.12 by demonstrating that the total monthly organic hazardous air pollutant applied as determined by Equation 9-7 is less than the calculated equivalent allowable organic hazardous air pollutant as determined by permit condition 8.8.

Equation 9-7 – Calculating total monthly organic hazardous air pollutant applied

$$H_m = \sum_{i=1}^{p} C_{hi} M_i + \sum_{j=1}^{q} C_{hij} M_{ij} - M_{vret}$$

Where:

- H_m = Total monthly organic hazardous air pollutant applied, kilograms;

- p = Number of different coating materials applied in a month;
- C_{hi} = Organic hazardous air pollutant content of coating material, i, "as purchased", expressed as a mass fraction, kilograms/kilograms;
- M_i = Mass of "as purchased" coating material, i, applied in a month, kilograms;
- q = Number of different materials added to the coating material;
- C_{hij} = Organic hazardous air pollutant content of material, j, added to "as purchased" coating material, i, expressed as a mass fraction, kilograms/kilograms;
- M_{ij} = Mass of material, j, added to "as purchased" coating material, i, in a month, kilograms; and
- M_{vret} = Mass of volatile matter retained in the coated web after curing or drying, or otherwise not emitted to the atmosphere, kilograms. The value of this term will be zero in all cases except where the owner or operator chooses to take into account the volatile matter otherwise not emitted to the atmosphere.

10.0 Performance Tests

10.1 Performance test may be required

In accordance with ARSD 74:36:11:02, the Secretary may request a performance test during the term of this permit. A performance test shall be conducted while operating the unit at or greater than 90 percent of its maximum design capacity, unless otherwise specified by the Secretary. A performance test conducted while operating less than 90 percent of its maximum design capacity will result in the operation being limited to the percent achieved during the performance test. The Secretary has the discretion to extend the deadline for completion of performance test required by the Secretary if circumstances reasonably warrant but will not extend the deadline past a federally required performance test deadline.

10.2 Test methods and procedures

In accordance with ARSD 74:36:11:01, the owner or operator shall conduct the performance test in accordance with 40 CFR Part 60, Appendix A, 40 CFR Part 63, Appendix A, and 40 CFR Part 51, Appendix M. The Secretary may approve an alternative method if a performance test specified in 40 CFR Part 60, Appendix A, 40 CFR Part 63, Appendix A, and 40 CFR Part 51, Appendix M is not federally applicable or federally required.

10.3 Representative performance test

In accordance with ARSD 74:36:07:01, as referenced to 40 CFR § 60.8(c), performance tests shall be conducted under such conditions as the Secretary shall specify to the owner or operator based on the representative performance of the unit being tested. The owner or operator shall make available to the Secretary such records as may be necessary to determine the conditions of the performance tests. Operations during periods of startup, shutdown, and malfunction shall not constitute representative conditions for the purpose of a performance test nor shall emissions in excess of the level of the applicable emission limit during periods of startup, shutdown, and malfunction be considered a violation of the applicable emission limit unless otherwise specified in this permit.

10.4 Submittal of site-specific test plan

In accordance with ARSD 74:36:11:01 and 74:36:08:03, as referenced to 40 CFR § 63.7(c), the owner or operator shall submit a site-specific test plan to the Secretary at least 60 days before the performance test is initially scheduled to begin. The site-specific test plan shall include a test program summary, the test schedule, data quality objectives, and an internal and external quality assurance program. Data quality objectives are the pretest expectations of precision, accuracy, and completeness of data. The Secretary will notify the owner or operator if the proposed test procedures are approved or denied. If the proposed test procedures are denied, the Secretary will provide written notification that outlines what needs to be completed for approval.

10.5 Notification of test

In accordance with ARSD 74:36:11:03 and 74:36:08:03, as referenced to 40 CFR § 63.7(b), the owner or operator shall notify the Secretary at least 60 days before the performance test is initially scheduled to begin to allow the Secretary to review and approve the proposed test procedures and arrange for an agreeable test date when the Secretary may observe the test. In the event the owner or operator is unable to conduct the performance test on the date specified in the notification due to unforeseeable circumstances beyond his or her control, the owner or operator must notify the Secretary as soon as practicable and without delay prior to the scheduled performance test date and specify the date when the performance test is rescheduled. This notification of delay in conducting the performance test shall not relieve the owner or operator of legal responsibility for compliance with any other applicable provisions of this part or with any other applicable federal, state, or local requirement, nor will it prevent the Secretary from implementing or enforcing this part or taking any other action under the federal Clean Air Act.

10.6 Performance test report

In accordance with ARSD 74:36:05:16.01(9), the owner or operator shall submit a performance test report to the Secretary within 60 days after completing the performance test or by a date designated by the Secretary. The performance test report shall contain the following information:

1. A brief description of the process and the air pollution control system being tested;
2. Sampling location description(s);
3. A description of sampling and analytical procedures and any modifications to standard procedures;
4. Test results;
5. Quality assurance procedures and results;
6. Records of operating conditions during the test, preparation of standards, and calibration procedures;
7. Raw data sheets for field sampling and field and laboratory analyses;
8. Documentation of calculations;
9. All data recorded and used to establish parameters for compliance monitoring; and
10. Any other information.

11.0 Monitoring

11.1 Periodic monitoring for opacity limits

In accordance with ARSD 74:36:05:16.01(9), the owner or operator shall demonstrate compliance with the opacity limits in Chapter 6.0, except for Unit(s) #3, #4a, #4b, #4c, #4d, #4e, #7, #8, #13a, #13b, #14a through #14c, #17 through #22, #24, #25, #27, and #30, on a periodic basis. Periodic monitoring shall be based on the amount of visible emissions from each unit and evaluated according to the following steps:

Step 1: If there are no visible emissions from a unit subject to an opacity limit, periodic monitoring shall consist of a visible emission reading. A visible emission reading shall consist of a visual survey of each unit over a two-minute period to identify if there are visible emissions. The visible emission reading must be conducted while the unit is in operation; but not during periods of startup, shutdown, or malfunctions. Visible emission readings on each unit subject to an opacity limit in Chapter 6.0 shall be based on the following frequency:

a. The owner or operator shall conduct a visible emission reading once per calendar month;
b. If no visible emissions are observed from a unit in six consecutive monthly visible emission readings, the owner or operator may decrease the frequency of readings from monthly to semiannually for that unit; or
c. If no visible emissions are observed from a unit in two consecutive semiannual visible emission readings, the owner or operator may decrease the frequency of testing of readings from semiannually to annually for that unit.

Step 2: If visible emissions are observed from a unit at any time other than periods of startup, shutdown, or malfunction, the owner or operator shall conduct a visible emission test on that unit to determine if the unit is in compliance with the opacity limit specified in Chapter 6.0. The emission test shall be for six minutes and conducted in accordance with 40 CFR Part 60, Appendix A, Method 9. The visible emission test must be conducted while the unit is in operation; but not during periods of startup, shutdown, or malfunctions. Visible emission tests shall be based on the following frequency:

a. The visible emission test must be conducted within one hour of witnessing a visible emission from a unit during a visible emission reading;
b. If the visible emission test required in Step 2(a) results in an opacity value less than or equal to 50 percent of the opacity limit for the unit, the owner or operator shall perform a visible emission test once per month;
c. If the opacity value of a visible emission test is less than five percent for six straight monthly tests, the owner or operator may revert back to monthly visible emission readings as required in Step 1;
d. If the visible emission test required in Steps 2(a) or 2(b) results in an opacity value greater than 50 percent of the opacity limit but less than the opacity limit, the owner or operator shall perform a visible emission test once per week; or

e. If the visible emission test in Step 2(d) results in an opacity value less than or equal to 50 percent of the opacity limit for six straight weekly readings, the owner or operator may revert back to a monthly visible emission test as required in Step 2(b).

The person conducting the visible emission test must be certified in accordance with 40 CFR Part 60, Appendix A, Method 9. If a visible emission test is required before a person is certified in accordance with permit condition 11.2, the owner or operator shall notify the Secretary within 24 hours of observing the visible emissions to schedule a visible emission test performed by a state inspector.

11.2 Certified personnel – visible emission tests

In accordance with ARSD 74:36:13:07, within 180 days after permit issuance the owner or operator shall retain a person that is certified to perform a visible emission test in accordance with 40 CFR Part 60, Appendix A, Method 9. The owner or operator shall retain a certified person throughout the remaining term of this permit.

11.3 Monitoring sulfur content of distillate oil

In accordance with ARSD 74:36:05:16.01(9), the owner or operator shall obtain a fuel supplier certification for each load of distillate oil purchased or received. The fuel supplier certification shall include the following information:

1. The name of the oil supplier;
2. A statement from the oil supplier that the oil complies with the specifications under the definition of distillate oil. Distillate oil means fuel oil that complies with the specifications for fuel oil numbers 1 or 2. Specifications for fuel oils are defined in the American Society for Testing and Materials in ASTM D396-78, "Standards Specifications for Fuel Oils";
3. For distillate oil, a statement that the sulfur content of the distillate oil does not exceed 0.05 weight percent sulfur; and
4. For distillate oil burned in Unit #25, a statement that the sulfur content of the oil does not exceed the weight percent sulfur required in permit condition 12.2.

In the case where a fuel supplier certification is not obtained for a shipment of distillate oil, the owner or operator shall collect a grab sample from the storage tank in which the shipment is being stored within 30 days of receiving the shipment of distillate oil but before another load of distillate oil is transferred into the storage tank. The grab sample shall be analyzed to determine the sulfur content of the distillate oil in the storage tank. A copy of the results of the distillate oil analysis shall be submitted with the semiannual report required in permit condition 5.11.

12.0 Requirements for Unit #25 and #31

12.1 Emission standards for generators

In accordance with ARSD 74:36:07:88, as referenced to 40 CFR §§ 60.4201(a), 60.4202(a)(2), 60.4204(b), 60.4205(b), and 60.4206, the owner or operator shall operate and maintain Unit #25 and #31 that achieves the emission limits listed in Table 12-1 over the life of the generator.

Table 12-1 – Generator Emission Standards

Unit	Nonmethane Hydrocarbons and Nitrogen Oxides	Carbon Monoxide	Total Suspended Particulate
#25	4.0 grams/kilowatt-hour	3.5 grams/kilowatt-hour	0.2 grams/kilowatt-hour
#31	4.0 grams/kilowatt-hour	3.5 grams/kilowatt-hour	0.2 grams/kilowatt-hour

12.2 Fuel requirements for generators

In accordance with ARSD 74:36:07:88, as referenced to 40 CFR § 60.4207(b), the owner or operator shall only combust diesel fuel in Unit #25 and #31 that meets the following per gallon standards:

1. Maximum sulfur content of 15 parts per million (0.0015%); and
2. Minimum centane index of 40; or
3. Maximum aromatic content 35 percent by volume.

12.3 Compliance with generator emission limits

In accordance with ARSD 74:36:07:88, as referenced to 40 CFR § 60.4211(c), the owner or operator shall demonstrate compliance with the emission limits in permit condition 12.1 by the following methods, except as specified in permit condition 12.5:

1. Purchase a generator certified to the emission standards in permit condition 12.1; and
2. Install and configure the generator according to the manufacturer’s emission-related specifications.

12.4 Operating requirements for generators

In accordance with ARSD 74:36:07:88, as referenced to 40 CFR § 60.4211(a), the owner or operator shall comply with the following, except as specified in permit condition 12.5:

1. Operate and maintain the generator according to the manufacturer's emission-related written instructions;
2. Change only those emission-related settings that are permitted by the manufacturer; and
3. Meet the applicable requirements in 40 CFR Part 89, 94, and/or 1068.

12.5 Alternative requirements for generators

In accordance with ARSD 74:36:07:88, as referenced to 40 CFR § 60.4211(g)(2), if the owner or operator does not install, configure, operate, and maintain Unit #25 and/or #31 according to the manufacturer’s emission-related written instructions or changes the emission-related settings in a way that is not permitted by the manufacturer, the owner or operator must demonstrate compliance as follows:

1. Maintain a maintenance plan and records of conducted maintenance;
2. To the extent practicable, maintain and operate the generator in a manner consistent with good air pollution control practice for minimizing emissions;

3. Conduct an initial performance test to demonstrate compliance with the emission limits in permit condition 12.1 within 1 year of startup, within 1 year after the generator is no longer installed, configured, operated, and maintained in accordance with the manufacturer's emission-related written instructions, or within 1 year after the owner or operator changes emission-related settings in a way that is not permitted by the manufacturer; and
4. The owner or operator shall conduct subsequent performance testing on Unit #25 every 8,760 hours of generator operation or 3 years, whichever comes first, thereafter to demonstrate compliance with the emission limits in permit condition 12.1.

12.6 Performance test requirements for generators

In accordance with ARSD 74:36:07:88, as referenced to 40 CFR § 60.4212(a) and (c), if the owner or operator conducts a performance test to demonstrate compliance with permit condition 12.1, the following procedures shall be followed, except as provided in permit condition 12.7:

1. The performance test must be conducted according to the in-use testing procedures in 40 CFR Part 1039, Subpart F; and
2. Exhaust emissions from the generator must not exceed the "NTE" numerical requirements, rounded to the same number of decimal places as the applicable emission limit in permit condition 12.1 and determined by Equation 12-1.

Equation 12-1 – NTE formula

NTE = 1.25 x STD

Where:

- NTE = Numerical requirement for each pollutant identified in Table 12-1; and
- STD = Emission limit for each pollutant identified in Table 12-1

12.7 Alternative performance test requirements for generators

In accordance with ARSD 74:36:07:88, as referenced to 40 CFR §§ 60.4212(c) and 60.4213, the owner or operator may use the following performance test procedures to demonstrate compliance with permit condition 12.1:

1. The performance test must be conducted according to the requirements in 40 CFR § 60.8 and under the specific conditions in Table 7 of 40 CFR Part 60, Subpart IIII. The test must be conducted within 10 percent of 100 percent peak (or the highest achievable) load;
2. The owner or operator may not conduct the performance test during periods of startup, shutdown, or malfunction;
3. The owner or operator shall conduct three separate test runs for each performance test and each test run must last at least 1 hour; and
4. To determine compliance with the particulate matter mass per unit output emission limit, convert the concentration of particulate matter in the engine exhaust using Equation 12-2.

Equation 12-2 – Particulate matter conversion

$$ER = \frac{C_{adj} \times Q \times T}{KW - hour}$$

Where:

- ER = Emission rate, in grams per KW-hour;
- C_{adj} = Calculated particulate matter concentration, in grams per standard cubic meter;
- Q = Stack gas volumetric flow rate, in standard cubic meter per hour;
- T = Time of test run, in hours; and
- KW-hour = Energy output of engine, in kilowatts.

13.0 40 CFR Part 63 Subpart ZZZZ Exemption

13.1 Exemption for Unit #25 (Generator #2)

In accordance with ARSD 74:36:08:40, as referenced in 40 CFR § 63.6590(b)(i), Unit #25 is exempt from the requirements in 40 CFR Part 63, Subpart ZZZZ provided Unit #25 does not operate or is not contractually obligated to be available for more than 15 hours per calendar year for the following purposes:

1. Unit #25 may be operated for emergency demand response for periods in which the Reliability Coordinator under the North American Electric Reliability Corporation (NERC) Reliability Standard EOP-002-3, Capacity and Energy Emergencies (incorporated by reference, see 40 CFR § 63.14), or other authorized entity as determined by the Reliability Coordinator, has declared an Energy Emergency Alert Level 2 as defined in the NERC Reliability Standard EOP-002-3; and
2. Unit #25 may be operated for periods where there is a deviation of voltage or frequency of 5 percent or greater below standard voltage or frequency.

13.2 Maintaining exemption status for Unit #25 (Generator #2)

In accordance with ARSD 74:36:08:40, as referenced in 40 CFR § 63.6640(f), the owner or operator may maintain Unit #25's status as an emergency generator and exempt from 40 CFR Part 60, Subpart ZZZZ, provided the owner or operator meet the following requirements:

1. There is no time limit on the use of Unit #25 in emergency situations;
2. The owner or operator may operate Unit #25 for any combination of following purposes for a maximum of 100 hours per calendar year. Any operation for non-emergency situations as allowed by subparagraph (3) of this permit condition counts as part of the 100 hours per calendar year:
   a. Unit #25 may be operated for maintenance checks and readiness testing, provided the tests are recommended by federal, state or local government, the manufacturer, the vendor, the regional transmission organization or equivalent balancing authority and transmission operator, or the insurance company associated with the engine. The owner or operator may petition the Secretary for approval of additional hours to be used for maintenance checks and readiness testing, but a petition is not required if the owner or operator maintains records indicating that federal, state, or local standards require maintenance and testing of emergency RICE beyond 100 hours per calendar year; and
   b. Unit #25 may be operated as specified in permit condition 13.1;
3. Unit #25 may be operated for up to 50 hours per calendar year in non-emergency situations. The 50 hours of operation in non-emergency situations are counted as part of the 100 hours per calendar year for maintenance and testing and emergency demand response provided in

subparagraph (2) of this permit condition. The 50 hours per year for non-emergency situations cannot be used for peak shaving or non-emergency demand response, or to generate income for the owner or operator to supply power to an electric grid or otherwise supply power as part of a financial arrangement with another entity;

13.3 Exemption for Unit #27 (Generator #1)

In accordance with ARSD 74:36:08:40, as referenced in 40 CFR § 63.6590(b)(3)(iv), Unit #27 is exempt from the requirements in 40 CFR Part 63, Subpart ZZZZ provided the owner or operator does not operate Unit #27 for more than 100 hours during any calendar year.

13.4 Monitoring requirements for Unit #25 and #27

In accordance with ARSD 74:36:05:16.01(9), the owner or operator shall install, maintain, and operate a non re-settable clock on Unit #25 and #27. The clock shall continuously record the hours of operation of each unit. The owner or operator shall maintain a daily log of the hours of operations if the non re-settable clock is inoperable.

13.5 Recordkeeping requirements for Unit #25 and #27

In accordance with ARSD 74:36:05:16.01(9), the owner or operator shall maintain a monitoring log that contains the following information:

1. The number of hours Unit #25 and #27 operated and the reason each unit operated; and
2. The total number of hours Unit #25 and #27 operated during each calendar year.

14.0 40 CFR Part 60 Subpart Dc

14.1 Changing boiler fuels

In accordance with ARSD 74:36:07:05, as referenced to 40 CFR § 60.40c, Unit #28 shall be fueled with natural gas and distillate oil only and Unit #29 shall be fueled with natural gas only. If the boilers are fueled with other fuels such as propane, coal, other oil, or wood, additional standards and requirements in 40 CFR Part 60, Subpart Dc may apply. The owner or operator shall apply for and obtain approval from the Secretary before other fuels can be used as a fuel in Unit #28 and #29.

Distillate oil means fuel oil that complies with the specifications for fuel oil numbers 1 or 2, as defined by the American Society for Testing and Materials in ASTM D396 or diesel fuel oil numbers 1 or 2, as defined by the American Society for Testing and Materials in ASTM D975.

14.2 Sulfur dioxide limits

In accordance with ARSD 74:36:07:05, as referenced to 40 CFR § 60.42c(d), (h), and (i), the owner or operator shall not burn distillate oil containing greater than 0.5 weight percent sulfur in Unit #28. Compliance with the fuel oil sulfur limit shall be determined based on a certification from the fuel supplier. The fuel certification must include the information in permit condition 14.8. The sulfur dioxide emission limits and fuel oil sulfur limits apply at all times, including periods of startup, shutdown, and malfunction.

14.3 Opacity limits

In accordance with ARSD 74:36:07:05, as referenced to 40 CFR § 60.43c(c) and (d), the owner or operator shall not discharge into the atmosphere from Unit #28 any gases that exhibit greater than 20 percent opacity (6-minute average), except for one 6-minute period per hour of not more than 27 percent opacity. The opacity standard applies at all times, except during periods of startup, shutdown, and malfunction.

14.4 Initial sulfur dioxide performance test

In accordance with ARSD 74:36:07:05, as referenced to 40 CFR § 60.44c(h), the owner or operator shall demonstrate compliance with the sulfur dioxide limit in permit condition 14.2 based on fuel supplier certification. The initial performance test shall consist of the certification from the fuel supplier and contain the information listed in permit condition 14.8.

14.5 Initial opacity performance test

In accordance with ARSD 74:36:07:05, as referenced to 40 CFR §§ 60.45c(a)(8) and 60.47c(a), the owner or operator shall conduct an initial opacity performance test on Unit #28 while burning distillate oil using Method 9 of Appendix A-4 in 40 CFR Part 60 to demonstrate compliance with the limits in permit condition 14.3. The initial opacity performance test shall be conducted the first time distillate oil is burned in Unit #28 after this permit is issued. If during the initial 60 minutes of observation all 6-minute averages are less than 10 percent and all individual 15-second observations are less than or equal to 20 percent, the observation period may be reduced from 3 hours to 60 minutes.

14.6 Subsequent opacity performance tests

In accordance with ARSD 74:36:07:05, as referenced to 40 CFR § 60.47c(a)(1), the owner or operator shall conduct subsequent Method 9 performance tests according to the following schedule, as determined by the most recent Method 9 performance test results:

1. If no visible emissions are observed, a subsequent Method 9 performance test must be completed within 12 calendar months from the date that the most recent performance test was conducted;
2. If visible emissions are observed but the maximum 6-minute average opacity is less than or equal to 5 percent, a subsequent Method 9 performance test must be completed within 6 calendar months from the date that the most recent performance test was conducted;
3. If the maximum 6-minute average opacity is greater than 5 percent but less than or equal to 10 percent, a subsequent Method 9 performance test must be completed within 3 calendar months from the date that the most recent performance test was conducted; or
4. If the maximum 6-minute average opacity is greater than 10 percent, a subsequent Method 9 performance test must be completed within 45 calendar days from the date that the most recent performance test was conducted.

14.7 Alternative performance test method

In accordance with ARSD 74:36:07:05, as referenced to 40 CFR § 60.47c(a)(2) and (3), if the maximum 6-minute opacity is less than 10 percent during the most recent Method 9 performance

test, the owner or operator may, as an alternative to performing subsequent Method 9 performance test elect to perform subsequent monitoring using one of the following options:

1. Perform subsequent monitoring using Method 22 in Appendix A-7 of 40 CFR Part 60 according to the following procedures:
    a. Conduct 10 minute observations (during normal operation) each operating day a fuel is fired for which an opacity standard is applicable using Method 22 and demonstrate that the sum of the occurrences of any visible emissions is not in excess of 5 percent of the observation period (i.e., 30 seconds per 10 minute period). If the sum of the occurrence of any visible emissions is greater than 30 seconds during the initial 10 minute observation, immediately conduct a 30 minute observation. If the sum of the occurrence of visible emissions is greater than 5 percent of the observation period (i.e., 90 seconds per 30 minute period) the owner or operator shall either document and adjust the operation of the unit and demonstrate within 24 hours that the sum of the occurrence of visible emissions is equal to or less than 5 percent during a 30 minute observation (i.e., 90 seconds) or conduct a new Method 9 performance test using the procedure in permit condition 14.5 within 45 calendar days.
    b. If no visible emissions are observed for 30 operating days during which an opacity standard is applicable, observations can be reduced to once every 7 operating days during which an opacity standard is applicable. If any visible emissions are observed, daily observations shall be resumed; or
2. Perform subsequent monitoring using a digital opacity compliance system according to a site-specific monitoring plan approved by the Secretary.

14.8 <u>Monitoring sulfur content in distillate oil</u>

In accordance with ARSD 74:36:07:05, as referenced to 40 CFR § 60.48c(f)(1), the owner or operator shall obtain a fuel supplier certification for each load of distillate oil purchased or received. The fuel supplier certification shall include the following information:

1. The name of the oil supplier;
2. A statement from the oil supplier that the oil complies with the specifications under the definition of distillate oil given in permit condition 14.1; and
3. A statement that the sulfur content of the oil does not exceed 0.5 weight percent sulfur.

14.9 <u>Monitoring records</u>

In accordance with ARSD 74:36:07:05, as referenced to 40 CFR § 60.48c(c), (e)(11), and (i), the owner or operator shall maintain records of the following information for each day Unit #28 operates:

1. Records of visible emission monitoring applicable to the method used:
    a. For each visible emission performance test using Method 9 of Appendix A-4 in 40 CFR Part 60, the owner or operator shall keep the following records:
        i. Dates and time intervals of all opacity observation periods;
        ii. Name, affiliation, and copy of current visible emission reading certification for each visible emission observer participating in the performance test; and

iii. Copies of all visible emission observer opacity field data sheets;

b. For each visible emission performance test using Method 22 of Appendix A-7 in 40 CFR Part 60, the owner or operator shall keep the following records:
   i. Dates and time intervals of all visible emissions observation periods;
   ii. Name and affiliation for each visible emission observer participating in the performance test;
   iii. Copies of all visible emission observer opacity field data sheets; and
   iv. Documentation of any adjustments made and the time the adjustments were completed to Unit #28 to demonstrate compliance with the applicable monitoring requirements;

c. For each digital opacity monitoring system, the owner or operator shall maintain records and submit reports according to the requirements specified in the site-specific monitoring plan; and

2. Records of fuel suppliers' certifications.

The records must be maintained for a minimum of two years from the date of such record.

14.10 <u>Monthly records</u>

In accordance with ARSD 74:36:07:05, as referenced to 40 CFR § 60.48c(g)(2) and (i), the owner or operator shall record and maintain records of the amount of each fuel combusted during each calendar month in Unit #28 and #29. The monthly records must be maintained for a period of two years following the date of such record.

14.11 <u>Semiannual reporting</u>

In accordance with ARSD 74:36:07:05, as referenced to 40 CFR § 60.48c(c), (d), (e), and (j), the owner or operator shall submit a semiannual compliance report to the Secretary. The semiannual report shall contain the following information:

1. Name of facility, permit number, reference to this permit condition, and identification of the submittal as a semiannual compliance report;
2. Statement by a responsible official with that official's name, title, and signature certifying the accuracy of the content of the report and that the records of the fuel supplier certifications submitted represent all of the fuel combusted during the reporting period;
3. Calendar dates covered in the reporting period;
4. A copy of the fuel supplier certifications obtained during the reporting period; and
5. A copy of any visible emission monitoring which resulted in excess emissions.

The semiannual reports shall cover the periods January 1 through June 30 and July 1 through December 31 of each year. The semiannual reports must be postmarked or delivered no later than January 31 or July 31 of each year. The reporting requirements in this permit condition may be included with other semiannual reports required in this permit.