

Permit #: 28.3306-07
Effective Date: August 29, 2016
Expiration Date: June 27, 2021

The seal of the State of South Dakota is a circular emblem with a serrated outer edge. It features a central landscape scene with a river, a windmill, and a farm. The text "STATE OF SOUTH DAKOTA" is written in an arc across the top, and "1889" is at the bottom. The motto "UNDER GOD THE PEOPLE RULE" is inscribed in a smaller arc above the landscape. Two stars are positioned on either side of the central scene.

**SOUTH DAKOTA DEPARTMENT OF
ENVIRONMENT AND NATURAL RESOURCES
TITLE V AIR QUALITY OPERATING PERMIT**

A handwritten signature in black ink, appearing to read "S. M. Pirner".

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

**Under the South Dakota Air Pollution
Control Regulations**

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) at the location designated below and under the listed conditions:

A. Owner

1. Company Name and Address

SAPA Extrusions Inc.
2500 Alumax Road
Yankton, SD 57078

2. Actual Source Location and Mailing Address if Different from Above

2500 Alumax Road
Yankton, SD 57078

3. Permit Contact

Jamie Backhaus, EHS Manager
(605) 668-2371

4. Facility Contact

Cindy G. Smith, EHS Coordinator
(605) 668-2370

5. Responsible Official

Jeff Loecker, Site Coordinator
(605) 668-2377

B. Permit Revisions or Modifications

August 29, 2016 – Administrative Amendment to update the permit contact and responsible official.

C. Type of Operation

Aluminum extruding and painting facility

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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 16, 2011 and August 29, 2016, unless modified by the conditions of this permit. Except as otherwise provided herein, the control equipment shall be operated at all times in accordance with the manufacturer's specification and in a manner that achieves compliance with the conditions of this permit. The application consists of the application forms, supporting data, and supplementary correspondence. If the owner or operator becomes aware 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
#1	1979 Warwick Furnace Company aluminum remelt furnace (North Melter) fired with natural gas.	Maximum heat input equals 22.0 million Btus per hour. Maximum process rate equals 7.5 tons of aluminum per hour.	Not applicable
#2	1979 Warwick Furnace Company aluminum remelt furnace (South Melter) fired with natural gas.	Maximum heat input equals 22.0 million Btus per hour. Maximum process rate equals 7.5 tons of aluminum per hour.	Not applicable
#3	1988 Certified Industrial Technology aluminum remelt furnace (West Melter) fired with natural gas.	Maximum heat input equals 22.0 million Btus per hour. Maximum process rate equals 7.5 tons of aluminum per hour.	Not applicable
#4	1979 Certified Industrial Technology alloyed aluminum log furnace (Homogenizing Oven #1) fired with natural gas.	Maximum heat input equals 10 million Btus per hour.	Not applicable
#5	1988 Certified Industrial Technology alloyed aluminum log furnace (Homogenizing Oven #2) fired with natural gas.	Maximum heat input equals 10.24 million Btus per hour.	Not applicable
#7	2007 Belco aluminum heating furnace (2750 Log Heater) fired with natural gas.	Maximum heat input equals 7.5 million Btus per hour.	Not applicable
#8	1989 Elhaus Industries alloyed aluminum billet heater (3000 Log Heater) fired with natural gas.	Maximum heat input equals 8.5 million Btus per hour.	Not applicable

Unit	Description	Maximum Operating Rate	Control Device
#9	2006 Belco Industries alloyed aluminum log heater (3500 Log Heater), fired with natural gas.	Maximum heat input equals 9.5 million Btus per hour.	Not applicable
#10	Coating line ¹ – 1979 Belco Industries paint application booths (2) and paint flash off area on the original paint line process (Paint Line #1).	Not applicable	Not applicable
#11	1979 Belco Industries aluminum extrusions paint curing bake oven on the original paint line process (North Bake Oven – Paint Line #1), fired with natural gas.	Maximum heat input equals 3.0 million Btus per hour.	Not applicable
#12	Coating line ¹ – 1992 Belco Industries paint application booths (2), top coat application booths (2), and paint flash off area on the vertical paint line process (Paint Line #2).	Not applicable	1995 TELLKAMP Systems, Inc., regenerative thermal oxidizer fired with natural gas. The regenerative thermal oxidizer has a maximum heat input capacity of 3.5 million Btus per hour.
	1992 Belco Industries aluminum extrusions paint curing bake oven on the 1992 vertical paint line process (South Bake Oven – Paint Line #2), fired with natural gas.	Maximum heat input of the bake oven equals 3.5 million Btus per hour.	
#13	1992 NA-Stordby aluminum extrusions pretreatment washer stage 1 on the 1992 vertical paint line process (South line 1 st Stage Washer Burner – South Paint Line #2), fired with natural gas.	Maximum heat input equals 6.0 million Btus per hour.	Not applicable
#14	1992 Maxon Dry-off oven. South line. Ovenpak 456M. Fired with natural gas	Maximum heat input equals 6.5 million Btus per hour.	Not applicable
#15	1979 Maxon 8TOT North line 1 st stage washer burner	Maximum heat input equals 5.5 million Btus per hour	Not applicable
#16	1979 Maxon 8 TOT North Line 3 rd stage washer burner. Fired with natural gas	Maximum heat input equals 5.5 million Btus per hour.	Not applicable
#17	1992 Maxon NP-1 South line washer AMU. Fired with natural	Maximum heat input equals 6.33 million Btus per hour.	Not applicable

Unit	Description	Maximum Operating Rate	Control Device
	gas		
#18	2005 Rapid Air P81 AMU fired with natural gas	Maximum heat input equals 7.5 million Btus per hour.	Not applicable
#19	2005 Rapid Air P82 AMU fired with natural gas	Maximum heat input equals 7.5 million Btus per hour.	Not applicable
#20	1991 Maxon NP P84 West AMU fired with natural gas	Maximum heat input equals 6.05 million Btus per hour.	Not applicable
#21	1991 Maxon NP P84 East AMU fired with natural gas	Maximum heat input equals 6.05 million Btus per hour.	Not applicable
#22	1992 NA-Stordby 4762-7B South line 3 rd stage washer burner fired with natural gas	Maximum heat input equals 2.26 million Btus per hour.	Not applicable
#23	2015 RUPP RAM 230 Air Makeup Unit	Maximum heat input equals 6.5 million Btus per hour.	Not applicable
#24	2015 RUPP RAM 230 Air Makeup Unit	Maximum heat input equals 6.5 million Btus per hour.	Not applicable
#25	2015 Belco 89-15-3-PR15-1-P-L P85 Billet Heater	Maximum heat input equals 5.5 million Btus per hour.	Not applicable

¹ – Coating operation includes the equipment used to apply cleaning materials to a substrate to prepare it for coating application (surface preparation) or to remove dried coating; to apply coating to a substrate (coating application) and to dry or cure the coating after application; or to clean coating operation equipment (equipment cleaning); all storage containers and mixing vessels in which coatings, thinners and/or other additives, and cleaning materials are stored or mixed; all manual and automated equipment and containers used for conveying coatings, thinners and/or other additives, and cleaning materials; and all storage containers and all manual and automated equipment and containers used for conveying waste materials generated by a coating operation.

1.2 Duty to comply

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 Property rights or exclusive privileges

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 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, upon presentation of credentials, 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 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 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 may consist of the following:

1. Information from the use of the following methods is presumptively credible evidence of whether a violation has occurred:
 - a. A monitoring method approved 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 paragraph (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 Amendments and Modifications

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 implemented until the Secretary takes final action on the proposed change or the owner or operator was issued an air quality construction permit. 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 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;
3. Requires more frequent monitoring or reporting;
4. The ownership or operational control changes and the Secretary determines 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 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 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 recordkeeping 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 recordkeeping 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 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. In accordance with ARSD 74:36:05:41, the Secretary shall notify the owner or operator at least 30 days before reopening this permit. The 30-day period may be less in the case of an emergency.

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 describing 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 resulting 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 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

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 to operate 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

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 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; and

- e. Signature of person performing maintenance;
2. The temperature records for the regenerative thermal oxidizer associated with Unit #12 and the following information pertaining to temperatures that deviate from the desired temperatures in permit condition 8.4:
 - a. The date, time and duration the temperature fell below the desired temperature;
 - b. The reason the temperature fell below the desired value; and
 - c. The maintenance or procedures that were performed to bring the temperature back above the desired value.
3. 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 the permitted equipment was at the time being properly operated.

5.5 Annual records

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 annual amount of volatile organic compound emissions;
2. The annual amount of hazardous air pollutant emissions; and
3. The amount of natural gas consumed in the fuel burning units.

The amount volatile organic compound and hazardous air pollutant emissions 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.

5.6 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, recordkeeping, 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.

5.7 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) 773-4068.

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. A description of the permit violation and its cause(s);
2. The duration of the permit violation, including exact dates and times; and
3. The 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, unless otherwise specified in this permit. 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 opacity 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 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), 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 – Total Suspended Particulate Matter Emission Limit

Unit	Description	Emission Limit
#4	1979 Certified Industrial Technology alloyed aluminum log furnace	0.6 pounds per million Btus heat input

Unit	Description	Emission Limit
#5	1988 Certified Industrial Technology alloyed aluminum log furnace	0.6 pounds per million Btus heat input
#7	2007 Belco aluminum heating furnace	0.6 pounds per million Btus heat input
#8	1989 Elhaus Industries alloyed aluminum billet heater (3000 Log Heater)	0.6 pounds per million Btus heat input
#9	2006 Belco Industries alloyed aluminum log heater (3500 Log Heater)	0.6 pounds per million Btus heat input
#11	1979 Belco Industries aluminum extrusions paint curing bake oven	0.6 pounds per million Btus heat input
#12	1995 TELLKAMP Systems regenerative thermal oxidizer	0.6 pounds per million Btus heat input
#13	1992 Belco Industries aluminum extrusions pretreatment washer stage 1	0.6 pounds per million Btus heat input
#14	1992 Maxon Dry-off oven. South line. Ovenpak 456M. Fired with natural gas	0.6 pounds per million Btus heat input
#15	1979 Maxon 8TOT North line 1 st stage washer burner	0.6 pounds per million Btus heat input
#16	1979 Maxon 8 TOT North Line 3 rd stage washer burner. Fired with natural gas	0.6 pounds per million Btus heat input
#17	1992 Maxon NP-1 South line washer AMU. Fired with natural gas	0.6 pounds per million Btus heat input
#18	2005 Rapid Air P81 AMU fired with natural gas	0.6 pounds per million Btus heat input
#19	2005 Rapid Air P82 AMU fired with natural gas	0.6 pounds per million Btus heat input
#20	1991 Maxon NP P84 West AMU fired with natural gas	0.6 pounds per million Btus heat input
#21	1991 Maxon NP P84 East AMU fired with natural gas	0.6 pounds per million Btus heat input
#22	1992 NA-Stordby 4762-7B South line 3 rd stage washer burner fired with natural gas	0.6 pounds per million Btus heat input
#23	2015 RUPP RAM 230 Air Makeup Unit	0.6 pounds per million Btus heat input
#24	2015 RUPP RAM 230 Air Makeup Unit	0.6 pounds per million Btus heat input
#25	2015 Belco 89-15-3-PR15-1-P-L P85 Billet Heater	0.6 pounds per million Btus heat input

6.4 Sulfur dioxide limits

In accordance with ARSD 74:36:06:02(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
#4	1979 Certified Industrial Technology alloyed aluminum log furnace	3.0 pounds per million Btus heat input
#5	1988 Certified Industrial Technology alloyed aluminum log furnace	3.0 pounds per million Btus heat input
#7	2007 Belco aluminum heating furnace	3.0 pounds per million Btus heat input
#8	1989 Elhaus Industries alloyed aluminum billet heater (3000 Log Heater)	3.0 pounds per million Btus heat input
#9	2006 Belco Industries alloyed aluminum log heater (3500 Log Heater)	3.0 pounds per million Btus heat input
#11	1979 Belco Industries aluminum extrusions paint curing bake oven	3.0 pounds per million Btus heat input
#12	1995 TELLKAMP Systems regenerative thermal oxidizer	3.0 pounds per million Btus heat input
#13	1992 Belco Industries aluminum extrusions pretreatment washer stage 1	3.0 pounds per million Btus heat input
#14	1992 Maxon Dry-off oven. South line. Ovenpak 456M. Fired with natural gas	3.0 pounds per million Btus heat input
#15	1979 Maxon 8TOT North line 1 st stage washer burner	3.0 pounds per million Btus heat input
#16	1979 Maxon 8 TOT North Line 3 rd stage washer burner. Fired with natural gas	3.0 pounds per million Btus heat input
#17	1992 Maxon NP-1 South line washer AMU. Fired with natural gas	3.0 pounds per million Btus heat input
#18	2005 Rapid Air P81 AMU fired with natural gas	3.0 pounds per million Btus heat input
#19	2005 Rapid Air P82 AMU fired with natural gas	3.0 pounds per million Btus heat input
#20	1991 Maxon NP P84 West AMU fired with natural gas	3.0 pounds per million Btus heat input
#21	1991 Maxon NP P84 East AMU fired with natural gas	3.0 pounds per million Btus heat input
#22	1992 NA-Stordby 4762-7B South line 3 rd stage washer burner fired with natural gas	3.0 pounds per million Btus heat input
#23	2015 RUPP RAM 230 Air Makeup Unit	3.0 pounds per million Btus heat input
#24	2015 RUPP RAM 230 Air Makeup Unit	3.0 pounds per million Btus heat input
#25	2015 Belco 89-15-3-PR15-1-P-L P85 Billet Heater	3.0 pounds per million Btus heat input

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 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 owner or operator, 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

6.6 Circumvention not allowed

In accordance with ARSD 74:36:08:03, as referenced to 40 CFR § 63.4(b), no owner or operator shall build, erect, install, or use any article, machine, equipment, or process to conceal an emission that would otherwise constitute noncompliance with a relevant standard. Such concealment 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.

6.7 Minimizing emissions

In accordance with ARSD 74:36:08:03, as referenced to 40 CFR § 63.6(e)(1)(i), the owner or operator shall at all times, including periods of startup, shutdown, and malfunction, operate and maintain any permitted unit, including associated air pollution control equipment and monitoring equipment, in a manner consistent with safety and good air pollution control practices for minimizing emissions. During a period of startup, shutdown, or malfunction, this general duty to minimize emissions requires the owner or operator to reduce emissions from the permitted unit 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 (including a startup, shutdown, and malfunction plan, if required), review of operation and maintenance records, and inspection of the operation.

7.0 Performance Tests

7.1 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.

7.2 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.

7.3 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.

7.4 Submittal of test plan

In accordance with ARSD 74:36:11:01, the owner or operator shall submit the proposed testing procedures to the Secretary at least 30 days prior to any performance test. 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 outlining what needs to be completed for approval.

7.5 Notification of test

In accordance with ARSD 74:36:07:01, as referenced to 40 CFR § 60.8(d), the owner or operator shall notify the Secretary at least 30 days prior to the start of a performance test to afford the Secretary the opportunity to have an observer present. If there is a delay in conducting the scheduled performance test, the owner or operator shall notify the Secretary as soon as possible of any delay in the original test date, either by providing at least 7 days prior notice of the

rescheduled date of the performance test, or by arranging a rescheduled date with the Secretary by mutual agreement.

7.6 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 represented in the same terminology as the permit limits;
5. Quality assurance procedures and results;
6. Records of operating conditions during the test necessary for demonstrating compliance with the permit limits, 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 required by the test method.

8.0 PSD Exemptions

8.1 Prevention of significant deterioration review exemption

In accordance with ARSD 74:36:05:16.01(8), the owner or operator is exempt from a prevention of significant deterioration review for volatile organic compounds. The exemption is based on operational and air emission limits in this permit. Any relaxation in a permit condition(s) that increases applicable emissions equal to or greater than 238 tons per 12-month rolling period may require a full prevention of significant deterioration review as though construction had not commenced on the source.

8.2 Plant wide volatile organic compound emission limit

In accordance with ARSD 74:36:05:16.01(8), the owner or operator shall not emit into the ambient air greater than or equal to 238 tons of volatile organic compounds per 12-month period.

8.3 Regenerative thermal oxidizer destruction efficiency

In accordance with ARSD 74:36:05:16.01(8), the owner or operator shall maintain a minimum volatile organic compound destruction efficiency for the regenerative thermal oxidizer associated with Unit #12 of 90 percent or 20 parts per million by volume, whichever is the least stringent.

8.4 Continuously monitor regenerative thermal oxidizer temperatures

In accordance with ARSD 74:36:05:16.01(9), the owner or operator shall install, calibrate, maintain, and operate a device that continuously monitors and records the temperature of the

exhaust gases exiting from regenerative thermal oxidizer associated with Unit #12. The monitoring devices shall have an accuracy 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. If the temperature falls below the desired temperature for the regenerative thermal oxidizer, the owner or operator must record the incident in the monitoring log required in permit condition 5.4.

The owner or operator shall maintain the temperature of the regenerative thermal oxidizer as follows:

1. The temperature of the exhaust gases exiting the regenerative thermal oxidizer shall be maintained equal to or greater than the average temperature achieved during the most recent performance test; and
2. If the average temperature of the exhaust gases exiting from regenerative thermal oxidizer falls below the desired temperature by more than 50 degrees Fahrenheit during normal operations for more than a three-hour period, the owner or operator shall perform the following steps. For this condition, normal operations does not include startup, shutdown, or malfunctions:
 - a. Operate the regenerative thermal oxidizer within plus or minus 50 degrees Fahrenheit of the average temperature achieved during the most recent performance test that demonstrated compliance with the applicable conditions of this chapter;
 - b. Conduct a performance test on the regenerative thermal oxidizer to determine compliance with this chapter at the lower operating temperature. The performance test shall be conducted within 90 days after the date the temperature dropped below the desired temperature; and
 - c. If the performance test demonstrates compliance at the lower temperature, the temperature of the regenerative thermal oxidizer shall be maintained within plus or minus 50 degrees Fahrenheit of the average temperature or temperature range achieved during the corresponding performance test.

If there is evidence the temperature monitoring device is not functional for more than one hour, the owner or operator shall shutdown Unit #12 and the regenerative thermal oxidizer until the continuous monitor is operational or establish a system to record the temperature of the regenerative thermal oxidizer once every hour until the continuous monitor is operational. The owner or operator shall maintain at least one spare thermocouple.

8.5 Unit #12 performance test

In accordance with ARSD 74:36:11:02, the owner or operator shall conduct a stack performance test on the inlet and outlet of the regenerative thermal oxidizer associated with Unit #12 to determine the volatile organic compound destruction efficiency and establish an operating temperature parameter for the regenerative thermal oxidizer. Unit #12 must demonstrate a minimum volatile organic compound destruction efficiency of 90%. The stack performance test shall be conducted within 180 days of the issuance of this permit.

8.6 Reporting temperature deviations

In accordance with ARSD 74:36:05:16.01(9), if the average temperature of the exhaust gases exiting from regenerative thermal oxidizer falls below the desired temperature by more than 50 degrees Fahrenheit during normal operations for more than a three-hour period, the owner or operator shall notify the Secretary as-soon-as-possible, but no later than the first business day following the day of the deviation was discovered. The deviation 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 deviation. The following information shall be included in the written report:

1. The date, time and duration the temperature fell below the desired temperature;
2. The reason the temperature fell below the desired value;
3. The maintenance or procedures that were performed to bring the temperature back above the desired value; and
4. The date the performance test will be conducted to demonstrate compliance.

9.0 MACT Standard – Secondary Aluminum Production

9.1 Emission standards for group 1 furnaces

In accordance with ARSD 74:36:08:26, as referenced to 40 CFR §§ 63.1501(a) and 63.1505(i), on or after March 24, 2003, the owner or operator shall not emit the appropriate air pollutant in excess of the following from Unit #1, #2, and #3:

1. 0.20 kilograms of particulate matter per megagram (0.40 pounds of particulate matter per ton) of feed/charge;
2. 15 micrograms of dioxin/furan international toxic equivalents per megagram (2.1×10^{-4} grains of dioxin/furan international toxic equivalents per ton) of feed/charge; and
3. 0.20 kilograms of hydrogen chloride per megagram (0.40 pounds of hydrogen chloride per ton) of feed/charge.

The owner or operator may determine the emission standards in permit condition 9.2, 9.3, and 9.4 by applying the limits in this permit condition on the basis of the aluminum production weight in Unit #1, #2, and #3, rather than on the basis of feed/charge.

9.2 Plantwide particulate matter limit

In accordance with ARSD 74:36:08:26, as referenced to 40 CFR § 63.1505(k)(1), the owner or operator shall not discharge or allow to be discharged to the atmosphere any 3-day, 24-hour rolling average emissions of particulate matter in excess of Equation 9-1.

Equation 9-1 – Plantwide particulate matter limit

$$L_{CPM} = \frac{\sum_{i=1}^n (L_{tiPM} \times T_{ti})}{\sum_{i=1}^n T_{ti}}$$

Where:

- T_{ti} = The feed/charge rate for individual unit “i”;
- L_{tiPM} = The particulate matter emission limit for individual unit “i” (i.e., Unit #1, #2 and #3); and
- L_{cPM} = Plantwide particulate matter limit.

9.3 Plant wide hydrogen chloride limit

In accordance with ARSD 74:36:08:26, as referenced to 40 CFR § 63.1505(k)(2), the owner or operator shall not discharge or allow to be discharged to the atmosphere any 3-day, 24-hour rolling average emissions of hydrogen chloride in excess of Equation 9-2.

Equation 9-2 – Plantwide hydrogen chloride limit

$$L_{CHCl} = \frac{\sum_{i=1}^n (L_{tiHCl} \times T_{ti})}{\sum_{i=1}^n T_{ti}}$$

Where:

- T_{ti} = The feed/charge rate for individual unit “i”;
- L_{tiHCl} = The hydrogen chloride emission limit for individual unit “i” (i.e., Unit #1, #2 and #3); and
- L_{cHCl} = Plantwide hydrogen chloride limit.

9.4 Plant wide dioxin/furan limit

In accordance with ARSD 74:36:08:26, as referenced to 40 CFR § 63.1505(k)(3), the owner or operator shall not discharge or allow to be discharged to the atmosphere any 3-day, 24-hour rolling average emissions of dioxin/furan in excess of Equation 9-3.

Equation 9-3 – Plant wide dioxin/furan limit

$$L_{cD/F} = \frac{\sum_{i=1}^n (L_{tiD/F} \times T_{ti})}{\sum_{i=1}^n T_{ti}}$$

Where:

- T_{ti} = The feed/charge rate for individual unit “i”;
- $L_{tiD/F}$ = The dioxin/furan emission limit for individual unit “i” (i.e., Unit #1, #2 and #3); and
- $L_{cD/F}$ = Plant wide dioxin/furan limit.

9.5 Alternative compliance with plant wide limits

In accordance with ARSD 74:36:08:26, as referenced to 40 CFR § 63.1505(k)(4), the owner or operator may demonstrate compliance with the emission limits in permit condition 9.2, 9.3, and 9.4 by demonstrating that each group 1 furnace (i.e., Unit #1, #2, and #3) is in compliance with the applicable emission limit in permit condition 9.1.

9.6 Labeling requirements

In accordance with ARSD 74:36:08:26, as referenced to 40 CFR § 63.1506(b), the owner or operator shall provide and maintain easily visible labels posted at each group 1 furnace (i.e., Unit #1, #2, and #3) and in-line fluxer that identifies the following:

1. The unit is a group 1 furnace or in-line fluxer;
2. The applicable emission limit and means of compliance; and
3. The applicable operational standard(s) and control method(s) (i.e., work practices). This includes, but is not limited to, the type of charge to be used for a furnace (e.g., clean scrap only, all scrap, etc.), flux materials and addition practices, and the applicable operating parameter ranges and requirements as incorporated in the operation, maintenance, and monitoring plan.

9.7 Feed/charge or aluminum production measuring requirements

In accordance with ARSD 74:36:08:26, as referenced to 40 CFR § 63.1506(d), the owner or operator shall install and operate a device that measures and records or otherwise determines the weight of feed/charge or aluminum production weight for Unit #1, #2, and #3 for each operating cycle or time period used in the performance test. The owner or operator shall operate each weight measurement system or other weight determination procedure in accordance with the operation, maintenance, and monitoring plan. The owner or operator may choose to measure and record aluminum production weight rather than feed/charge weight, provided that:

1. The aluminum production weight, rather than feed/charge weight is measured and recorded for Unit #1, #2, and #3; and
2. All calculations to demonstrate compliance with the emission limits in permit condition 9.2, 9.3, and 9.4 are based on aluminum production weight rather than feed/charge weight.

9.8 No reactive flux materials in an in-line fluxer

In accordance with ARSD 74:36:08:26, as referenced to 40 CFR § 63.1506(l), the owner or operator shall use no reactive flux materials in an in-line fluxer. Reactive fluxing means the use of any gas, liquid, or solid flux, other than cover flux) that results in a hazardous air pollutant emission. Argon and nitrogen are not reactive and do not produce hazardous air pollutants.

9.9 Operating requirements

In accordance with ARSD 74:36:08:26, as referenced to 40 CFR § 63.1506(n), the owner or operator of Unit #1, #2, and #3 shall:

1. Maintain the total reactive chlorine flux injection rate for each operating cycle or time period used in the performance test at or below the average rate established during the performance test; and
2. Operate the units in accordance with the work practice/pollution prevention measures documented in the operation, maintenance, and monitoring plan.

9.10 Corrective action

In accordance with ARSD 74:36:08:26, as referenced to 40 CFR § 63.1506(p), when a process parameter deviates from the value or range established during the performance test and incorporated in the operation, maintenance, and monitoring plan, the owner or operator must initiate corrective action. Corrective action must restore the operation to its normal or usual

mode of operation as expeditiously as practicable in accordance with good air pollution control practices for minimizing emissions. Corrective actions taken must include follow-up actions necessary to return the process parameter level(s) to the value or range of values established during the performance test and steps to prevent the likely recurrence of the cause of a deviation.

9.11 Operation maintenance and monitoring plan

In accordance with ARSD 74:36:08:26, as referenced to 40 CFR § 63.1510(b), the owner or operator shall prepare, maintain, and implement a written operation, maintenance, and monitoring plan for Unit #1, #2, and #3. The owner or operator must comply with all of the provisions of the operation, maintenance, and monitoring plan as submitted to the Secretary, unless and until the plan is revised. If the Secretary determines that any revisions of the plan are necessary, the owner or operator must promptly make all necessary revisions and resubmit the revised plan. If the owner or operator determines that any other revisions of the operation, maintenance, and monitoring plan are necessary, such revisions will not become effective until the owner or operator submits a description of the changes and a revised plan incorporating the changes to the Secretary. Each plan must contain the following information:

1. Process parameters to be monitored to determine compliance, along with established operating levels or ranges, as applicable for each process;
2. A monitoring schedule for Unit #1, #2, and #3;
3. Procedures for the proper operation and maintenance of Unit #1, #2, and #3 used to meet the applicable emission limits or standards in permit condition 9.1, 9.2, 9.3 and 9.4;
4. Procedures for the proper operation and maintenance of monitoring devices or systems used to determine compliance, including calibration and certification of accuracy of each monitoring device, at least once every 6 months, according to the manufacturer's instructions;
5. Procedures for monitoring process parameters, including procedures to be used for determining charge/feed (or throughput) weight if a measurement device is not used;
6. Corrective actions to be taken when process or operating parameters deviate from the established value or range, including:
 - a. Procedures to determine and record the cause of any deviation or excursion, and the time the deviation or excursion began and ended; and
 - b. Procedures for recording the corrective action taken, the time corrective action was initiated, and the time/date corrective action was completed;
7. A maintenance schedule for Unit #1, #2, and #3 that is consistent with the manufacturer's instructions and recommendations for routine and long-term maintenance; and
8. Documentation of the work practice and pollution prevention measures used to achieve compliance with the applicable emission limits and a site-specific monitoring plan as required in permit condition 9.15 for Unit #1, #2, and #3.

9.12 Monthly label inspection

In accordance with ARSD 74:36:08:26, as referenced to 40 CFR § 63.1510(c), the owner or operator must inspect the labels for each group 1 furnace (i.e., Unit #1, #2, and #3) and in-line fluxer at least once per calendar month to confirm the posted labels as required by permit condition 9.6 are intact and legible.

9.13 Monitoring feed/charge or production

In accordance with ARSD 74:36:08:26, as referenced to 40 CFR § 63.1510(e), the owner or operator shall install, calibrate, operate, and maintain a device to measure and record the total weight of feed/charge to, or the aluminum production from, Unit #1, #2, and #3 over the same operating cycle or time period used in the performance test. Feed/charge or aluminum production must be measured and recorded on an emission unit-by-emission unit basis. As an alternative to a measurement device, the owner operator may use a procedure acceptable to the Secretary to determine the total weight of feed/charge or aluminum production to Unit #1, #2, and #3. The measuring device must meet the following requirements:

1. The accuracy of the weight measurement device or procedure must be ± 1 percent of the weight being measured. The owner or operator may apply to the Secretary for approval to use a device of alternative accuracy if the required accuracy cannot be achieved as a result of equipment layout or charging practices. A device of alternative accuracy will not be approved unless the owner or operator provides assurance through data and information that the applicable unit will meet the relevant emission standard; and
2. The owner or operator must verify the calibration of the weight measurement device in accordance with the schedule specified by the manufacturer, or if no calibration schedule is specified, at least once every 6 months.

9.14 Certifying no reactive flux materials

In accordance with ARSD 74:36:08:26, as referenced to 40 CFR § 63.1510(m), the owner or operator shall submit a certification of compliance with the operational standard for no reactive flux materials in permit condition 9.8 for each 6-month reporting period. The certification shall state, "Only nonreactive, non-hazardous air pollutant-containing, non-hazardous air pollutant-generating flux gases, agents, or materials were used at any time during this reporting period."

9.15 Site-specific monitoring plan

In accordance with ARSD 74:36:08:26, as referenced to 40 CFR § 63.1510(o), the owner or operator shall develop a written site-specific monitoring plan. The site-specific monitoring plan must be submitted to the Secretary as part of the operation, maintenance, and monitoring plan. The site-specific monitoring plan shall:

1. Contain sufficient procedures to ensure continuing compliance with all applicable emission limits and must demonstrate, based on documented test results, the relationship between emissions of particulate matter, hydrogen chloride, and dioxin/furan and the proposed monitoring parameters for each pollutant;
2. Test data must establish the highest level of particulate matter, hydrogen chloride, and dioxin/furan that will be emitted from Unit #1, #2, and #3. This may be determined by conducting performance tests and monitoring operating parameters while charging the furnace with feed/charge materials containing the highest anticipated levels of oils and coatings and fluxing at the highest anticipated rate;
3. The Secretary will approve or disapprove a proposed plan or request changes to a plan, based on whether the plan contains sufficient provisions to ensure continuing compliance with applicable emission limits and demonstrates, based on documented test results, the

relationship between emissions of particulate matter, hydrogen chloride, and dioxin/furan and the proposed monitoring parameters for each pollutant. If the Secretary determines that any revisions of the site-specific monitoring plan are necessary, the owner or operator must promptly make all necessary revisions and resubmit the revised plan;

4. Each site-specific monitoring plan must document each work practice, equipment/design practice, pollution prevention practice, or other measure used to meet the applicable emission standards;
5. Each site-specific monitoring plan must include provisions for unit labeling, feed/charge weight measurement (or production weight measurement);
6. If a site-specific monitoring plan includes a scrap inspection program for monitoring the scrap contaminant level of furnace feed/charge materials, the plan must include provisions for the demonstration and implementation of the program in accordance with permit condition 9.16; and
7. If a site-specific monitoring plan includes a calculation method for monitoring the scrap contaminant level of furnace feed/charge materials, the plan must include provisions for the demonstration and implementation of the program in accordance with all applicable requirements in permit condition 9.17.

9.16 Scrap inspection program

In accordance with ARSD 74:36:08:26, as referenced to 40 CFR § 63.1510(p), the owner or operator shall develop a scrap inspection program that meets the following:

1. A proven method for collecting representative samples and measuring the oil and coatings content of scrap samples;
2. A scrap inspector training program;
3. An established correlation between visual inspection and physical measurement of oil and coatings content of scrap samples;
4. Periodic physical measurements of oil and coatings content of randomly-selected scrap samples and comparison with visual inspection results;
5. A system for assuring that only acceptable scrap is charged in Unit #1, #2, and/or #3; and
6. Recordkeeping requirements to document conformance with plan requirements.

9.17 Monitoring scrap contamination level

In accordance with ARSD 74:36:08:26, as referenced to 40 CFR § 63.1510(q), the owner or operator that dedicates Unit #1, #2, and/or #3 to processing a distinct type of furnace feed/charge composed of scrap with a uniform composition such as rejected product from a manufacturing process for which the coating-to-scrap ratio can be documented may include a program in the site-specific monitoring plan for determining, monitoring, and certifying the scrap contaminant level using a calculation method rather than a scrap inspection program. A scrap contaminant monitoring program using a calculation method must include:

1. Procedures for the characterization and documentation of the contaminant level of the scrap prior to the performance test;
2. Limitations on the furnace feed/charge to scrap of the same composition as that used in the performance test. If the performance test was conducted with a mixture of scrap and

clean charge, limitations on the proportion of scrap in the furnace feed/charge to no greater than the proportion used during the performance test; and

3. Operating, monitoring, recordkeeping, and reporting requirements to ensure that no scrap with a contaminant level higher than that used in the performance test is charged to the furnace.

9.18 Site-specific requirements

In accordance with ARSD 74:36:08:26, as referenced to 40 CFR § 63.1510(s), the owner or operator must include the following site-specific requirements within the operation, maintenance, and monitoring plan:

1. The identification of each emission unit in the secondary aluminum processing unit;
2. The specific control technology or pollution prevention measure to be used for each emission unit in the secondary aluminum processing unit and the date of its installation or application;
3. The emission limit calculated for each secondary aluminum processing unit and performance test results with supporting calculations demonstrating initial compliance with each applicable emission limit;
4. Information and data demonstrating compliance for each emission unit with all applicable design, equipment, work practice or operational standards of this chapter;
5. The monitoring requirements applicable to each emission unit in a secondary aluminum processing unit and the monitoring procedures for daily calculation of the 3-day, 24-hour rolling average using the procedure in permit condition 9.19; and
6. The secondary aluminum processing unit compliance procedures within the operation, maintenance, and monitoring plan may not contain any of the following provisions:
 - a. Any averaging among emissions of differing pollutants;
 - b. The inclusion of any other units other than the emission units in a secondary aluminum processing unit;
 - c. The inclusion of any emission unit while it is shutdown; or
 - d. The inclusion of any periods of startup, shutdown, or malfunction in emission calculations.

To revise the secondary aluminum processing unit compliance provisions within the operation, maintenance, and monitoring plan prior to the end of the permit term, the owner or operator must submit a request to the Secretary containing the information in subparagraph (1) through (5) of this permit condition and obtain approval prior to implementing any revisions.

9.19 Calculating 3-day, 24-hour rolling average

In accordance with ARSD 74:36:08:26, as referenced to 40 CFR § 63.1510(t), except as provided in permit condition 9.20, the owner or operator shall calculate and record the 3-day, 24-hour rolling average emissions of particulate matter, hydrogen chloride, and dioxin/furan on a daily basis. To calculate the 3-day, 24-hour rolling average, the owner or operator must:

1. Calculate and record the total weight of material charged to Unit #1, #2, and #3 for each 24-hour day of operation using the feed/charge weight information required in permit

condition 9.13. If the owner or operator chooses to comply on the basis of weight of aluminum produced, rather than weight of material charged, all performance test emissions results and all calculations must be conducted on the aluminum production weight basis;

2. Multiply the total feed/charge weight to Unit #1, #2, and #3, or the weight of aluminum produced by Unit #1, #2, and #3, for the 24-hour period by the emission rate (in pounds per ton of feed/charge) for each unit (as determined during the performance test) to provide emissions for each unit for the 24-hour period, in pounds;
3. Divide the total emissions from Unit #1, #2, and #3 for the 24-hour period by the total material charged to Unit #1, #2, and #3, or the weight of aluminum produced, over the 24-hour period to provide the daily emission rate.
4. Compute the 24-hour daily emission rate using Equation 9-4.

Equation 9-4 – Compute 24-hour daily emission rate

$$E_{Day} = \frac{\sum_{i=1}^n T_i \times ER_i}{\sum_{i=1}^n T_i}$$

Where:

- E_{Day} = The daily particulate matter, hydrogen chloride, or dioxin/furan emission rate for Unit #1, #2, and #3 for the 24-hour period;
 - T_i = The total amount of feed, or aluminum produced, for Unit “i” for the 24-hour period (tons or megagrams);
 - ER_i = The measured emission rate for Unit “i” as determined in the performance test (pound/ton or microgram/megagram of feed/charge); and
 - n = The number of units.
5. Calculate and record the 3-day, 24-hour rolling average for each pollutant each day by summing the daily emission rates for each pollutant over the 3 most recent consecutive days and dividing by 3.

9.20 Alternative compliance demonstration

In accordance with ARSD 74:36:08:26, as referenced to 40 CFR § 63.1510(u), as an alternative to the procedures in permit condition 9.19, the owner or operator may demonstrate, through performance tests, that Unit #1, #2, and #3 are in compliance with the applicable emission limits.

9.21 Test methods

In accordance with ARSD 74:36:08:26, as referenced to 40 CFR § 63.1511(c) and (d), the owner or operator shall use the following methods in 40 CFR Part 60, Appendix A to determine compliance with the applicable emission limits or standards:

1. Method 1 for sample and velocity traverses;
2. Method 2 for velocity and volumetric flow rate;
3. Method 3 for gas analysis;
4. Method 4 for moisture content of the stack gas;
5. Method 5 for the concentration of particulate matter;

6. Method 23 for the concentration of dioxins/furans; and
7. Method 26A for the concentration of hydrogen chloride.

The owner or operator may use an alternative test method, subject to approval by the Secretary. In accordance with ARSD 74:36:08:26, as referenced to 40 CFR § 63.1512(e), the owner or operator shall conduct the emission tests to measure emissions of particulate matter, dioxins/furans, and hydrogen chloride at the furnace exhaust outlet.

9.22 Periodic performance testing

In accordance with ARSD 74:36:08:26, as referenced to 40 CFR § 63.1511(e), the owner or operator shall conduct a performance test on Unit #1, #2, and #3 every 5 years, except as allowed in permit condition 9.23. The next performance test required during the term of this permit is on or before October 16, 2017.

In accordance with ARSD 74:36:08:26, as referenced to 40 CFR § 63.1512(k), the owner or operator shall measure or otherwise determine and record the total weight of feed/charge to the unit being tested for each of the three test runs and calculate and record the total weight. The owner or operator that chooses to demonstrate compliance based on the aluminum production weight must measure the weight of aluminum produced by the unit being tested instead of the feed/charge weight.

9.23 Testing representative unit

In accordance with ARSD 74:36:08:26, as referenced to 40 CFR § 63.1511(f), the owner or operator may utilize the emission rate obtained from testing a particulate unit to determine the emission rate for the other units. Such emission testing is approvable if the following criteria are satisfied:

1. The tested unit must use feed materials and charge rates which are comparable to the units that it represents;
2. The tested unit must use the same type of flux materials in the same proportions as the units it represents;
3. The tested unit must be operated utilizing the same work practices as the units that it represents;
4. The tested unit must be of the same design as the units that it represents; and
5. The tested unit must be tested under the highest load or capacity reasonably expected to occur for any of the units that it represents.

9.24 Monitoring and operating parameters

In accordance with ARSD 74:36:08:26, as referenced to 40 CFR § 63.1511(g), the owner or operator shall establish a minimum or maximum operating parameter value, or an operating parameter range for each parameter to be monitored in permit condition 9.11 through 9.20, inclusive, that ensures compliance with the applicable emission limit or standard. To establish the minimum or maximum value or range, the owner or operator must use the appropriate procedures established in this chapter. The owner or operator may use existing data in addition to the results of performance tests to establish operating parameter values for compliance monitoring provided each of the following conditions are met to the satisfaction of the Secretary:

1. The complete emission test report(s) used as the basis of the parameter(s) is submitted;
2. The same required test methods and procedures were used in the test;
3. The owner or operator certifies that no design or work practice changes have been made to the source or process since the time of the report; and
4. All process operating parameters required to be monitored were monitored as required and documented in the test report.

9.25 Equations for demonstrating compliance with emission limits

In accordance with ARSD 74:36:08:26, as referenced to 40 CFR § 63.1513(b) and (d), the owner or operator shall use Equation 9-5 and 9-6 to determine compliance with the applicable emission limits:

Equation 9-5 – Determining particulate matter or hydrogen chloride emission rate

$$E = \frac{C \times Q \times K_1}{P}$$

Where:

- E = Emission rate of particulate matter or hydrogen chloride, kilogram/megagram (pound/ton) of feed/charge or aluminum production;
- C = Concentration of particulate matter or hydrogen chloride, gram/dry standard cubic meter (grain/dry standard cubic foot);
- Q = Volumetric flow rate of exhaust gases, dry standard cubic meter/hour (dry standard cubic foot/hour);
- K₁ = Conversion factor, 1 kilogram/1,000 grams (1 pound/7,000 grains); and
- P = Feed/charge or production rate, megagrams/hour (tons/hour).

Equation 9-6 – Determining dioxin/furan emission rate

$$E = \frac{C \times Q}{P}$$

Where:

- E = Emission rate of dioxin/furan, microgram/megagram (grain/ton) of feed;
- C = Concentration of dioxin/furan, microgram/dry standard cubic meter (grain/dry standard cubic foot);
- Q = Volumetric flow rate of exhaust gases, dry standard cubic meter/hour (dry standard cubic foot/hour);
- P = Production rate, megagrams/hour (tons/hour).

To convert dioxin/furan measurements to international toxic equivalent units, the owner or operator must use the procedures and equations in “Interim Procedures for Estimating Risks Associated with Exposures to Mixtures of Chlorinated Dibenzo-p-Dioxins and -Dibenzofurans (CDDs and CDFs) and 1989 Update” (EPA-625/3-89-016), available from the National Technical Information Service (NTIS), 5285 Port Royal Road, Springfield, Virginia, NTIS no. PB 90-145756.

9.26 Demonstrating compliance with secondary aluminum standards

In accordance with ARSD 74:36:08:26, as referenced to 40 CFR § 63.1513(e), the owner or operator shall use the following procedures to determine compliance with emission limits for a secondary aluminum processing unit:

1. Use Equation 9-7 to compute the mass-weighted particulate matter emissions for a secondary aluminum processing unit. Compliance is achieved if the mass-weighted emissions for the secondary aluminum processing unit (E_{cPM}) is less than or equal to the emission limit for the secondary aluminum processing unit (L_{cPM}) calculated using Equation 9-1.

Equation 9-7 – Calculate the mass-weighted particulate matter emissions

$$E_{cPM} = \frac{\sum_{i=1}^n (E_{tiPM} \times T_{ti})}{\sum_{i=1}^n (T_{ti})}$$

Where:

- E_{cPM} = The mass-weighted particulate matter emissions for the secondary aluminum processing unit;
- E_{tiPM} = Measured particulate matter emissions for individual emission unit i ;
- T_{ti} = The average feed rate for individual emission unit i during the operating cycle or performance test period; and
- n = The number of emission units in the secondary aluminum processing unit.

2. Use Equation 9-8 to compute the aluminum mass-weighted hydrogen chloride emissions for a secondary aluminum processing unit. Compliance is achieved if the mass-weighted emissions for the secondary aluminum processing unit (E_{cHCl}) is less than or equal to the emission limit for the secondary aluminum processing unit (L_{cHCl}) calculated using Equation 9-2.

Equation 9-8 – Calculate the mass-weighted hydrogen chloride emission limit

$$E_{cHCl} = \frac{\sum_{i=1}^n (E_{tiHCl} \times T_{ti})}{\sum_{i=1}^n (T_{ti})}$$

Where:

- E_{cHCl} = The mass-weighted hydrogen chloride emissions for the secondary aluminum processing unit;
- E_{tiHCl} = Measured hydrogen chloride emissions for individual emission unit i ;
- T_{ti} = The average feed rate for individual emission unit i during the operating cycle or performance test period; and
- n = The number of emission units in the secondary aluminum processing unit.

3. Use Equation 9-9 to compute the aluminum mass-weighted dioxin/furan emissions for a secondary aluminum processing unit. Compliance is achieved if the mass-weighted emissions for the secondary aluminum processing unit ($E_{cD/F}$) is less than or equal to the emission limit for the secondary aluminum processing unit ($L_{cD/F}$) calculated using Equation 9-3.

Equation 9-9 – Calculate the dioxin/furan emission limit

$$E_{cD/F} = \frac{\sum_{i=1}^n (E_{tiD/F} \times T_{ti})}{\sum_{i=1}^n (T_{ti})}$$

Where:

- $E_{cD/F}$ = The mass-weighted dioxin/furan emissions for the secondary aluminum processing unit;
- E_{tiHCl} = Measured dioxin/furan emissions for individual emission unit i ;
- T_{ti} = The average feed rate for individual emission unit i during the operating cycle or performance test period; and
- n = The number of emission units in the secondary aluminum processing unit.

As an alternative to using Equations 9-7, 9-8, and/or 9-9, the owner or operator may demonstrate compliance for a secondary aluminum processing unit by demonstrating that each unit is in compliance with the applicable emission limits in permit condition 9.1.

9.27 Startup, shutdown, and malfunction plan

In accordance with ARSD 74:36:08:03, as referenced to 40 CFR § 63.6(e)(3)(i) and (vi) and ARSD 74:36:08:26, as referenced to 40 CFR § 63.1516(a), the owner or operator shall develop a written startup, shutdown, and malfunction plan. The plan shall describe, in detail, procedures for operating and maintaining the applicable units during periods of startup, shutdown, and malfunction and a program of corrective action for any malfunction. The startup, shutdown, and malfunction plan does not need to address any scenario that would not cause the applicable unit to exceed an applicable emission limit. The startup, shutdown, and malfunction plan shall:

1. Ensure the owner or operator operates and maintains each applicable unit in a manner which satisfies the general duty to minimize emissions;
2. Ensure the owner or operator is prepared to correct malfunctions as soon as practicable after their occurrence in order to minimize excess emissions of hazardous air pollutants; and
3. Reduce the reporting burden associated with periods of startup, shutdown, and malfunction including corrective action taken to restore the malfunctioning unit to its normal or usual manner of operation.

The owner or operator may use the facility's standard operating procedures (SOP) manual, an Occupational Safety and Health Administration (OSHA) plan, or other plan, provided the alternative plans meet all the requirements of this permit condition and are made available for inspection or submitted when requested by the Secretary.

9.28 Exceedance when startup, shutdown, or malfunction plan followed

In accordance with ARSD 74:36:08:03, as referenced to 40 CFR § 63.6(e)(3)(iii) and ARSD 74:36:08:26, as referenced to 40 CFR § 63.1516(a), when actions taken by the owner or operator during startup, shutdown, or malfunction are consistent with the procedures specified in the startup, shutdown, and malfunction plan but the event results in a exceedance of an applicable

emission limit, the owner or operator must keep records for that event which demonstrate the procedures specified in the plan were followed. These records may take the form of a “checklist,” or other effective form of recordkeeping that confirms conformance with the startup, shutdown, and malfunction plan and describes the actions taken for that event. Furthermore, the owner or operator shall confirm that actions taken during the relevant reporting period during periods of startup, shutdown, and malfunction were consistent with startup, shutdown and malfunction plan in the semiannual report required in permit condition 9.32.

9.29 Exceedance when startup, shutdown, or malfunction plan not followed

In accordance with ARSD 74:36:08:03, as referenced to 40 CFR § 63.6(e)(3)(iv) and ARSD 74:36:08:26, as referenced to 40 CFR § 63.1516(a), if an action taken by the owner or operator during a startup, shutdown, or malfunction, including an action taken to correct a malfunction, is not consistent with the procedures specified in the startup, shutdown, and malfunction plan, and the unit exceeds an applicable emission limit, then the owner or operator must record the actions taken for that event and must report such actions within 2 working days after commencing actions inconsistent with the plan, followed by a letter within 7 working days after the end of the event (unless the owner or operator makes alternative reporting arrangements, in advance, with the Secretary). The report shall contain the following:

1. Name, title, and signature of the responsible official who is certifying to the accuracy of the report;
2. An explanation of the circumstances of the event and the reasons for not following the startup, shutdown and malfunction plan;
3. Description of all excess emissions and/or parameter monitoring exceedances which are believed to have occurred or could have occurred in the case of a malfunction; and
4. Actions taken to minimize emissions during the event.

9.30 Maintain startup, shutdown, or malfunction plan

In accordance with ARSD 74:36:08:03, as referenced to 40 CFR § 63.6(e)(3)(v) and ARSD 74:36:08:26, as referenced to 40 CFR § 63.1516(a), the owner or operator must maintain onsite a current startup, shutdown, and malfunction plan and must make the plan available upon request for inspection and copying by the Secretary. In addition, if the startup, shutdown, and malfunction plan is subsequently revised as provided in permit condition 9.31, the owner or operator must maintain onsite each previous (i.e., superseded) version of the startup, shutdown, and malfunction plan, and must make each such previous version available for inspection and copying by the Secretary for a period of 5 years after revision of the plan. If at any time after adoption of a startup, shutdown, and malfunction plan the owner or operator ceases operation or is otherwise no longer subject to the provisions of this chapter, the owner or operator must retain a copy of the most recent plan for 5 years from the date operations cease or is no longer subject to this chapter and must make the plan available upon request for inspection and copying by the Secretary. The Secretary may at any time request in writing that the owner or operator submit a copy of any startup, shutdown, and malfunction plan or a portion thereof. Upon receipt of such a request, the owner or operator must promptly submit a hard or electronic copy of the requested plan or a portion thereof to the Secretary.

9.31 Startup, shutdown, or malfunction plan revisions

In accordance with ARSD 74:36:08:03, as referenced to 40 CFR § 63.6(e)(3)(vii), (viii), and (ix) and ARSD 74:36:08:26, as referenced to 40 CFR § 63.1516(a), based on a review of the startup, shutdown, and malfunction plan, the Secretary may require an owner or operator make changes to the startup, shutdown, and malfunction plan. The Secretary shall require appropriate revisions to a startup, shutdown, and malfunction plan, if the plan:

1. Does not address a startup, shutdown, or malfunction event that has occurred;
2. Fails to provide for the operation of a unit, including associated air pollution control and monitoring equipment, during a startup, shutdown, or malfunction event in a manner consistent with the general duty to minimize emissions;
3. Does not provide adequate procedures for correcting malfunctioning process and/or air pollution control and monitoring equipment as quickly as practicable; or
4. Includes an event that does not meet the definition of startup, shutdown, or malfunction.

The owner or operator may periodically revise the startup, shutdown, and malfunction plan as necessary to satisfy the requirements of this chapter or to reflect changes in equipment or procedures. The owner or operator may make such revisions to the startup, shutdown, and malfunction plan without prior approval. However, each revision to a startup, shutdown, and malfunction plan must be reported in the semiannual report required in permit condition 9.32. If the startup, shutdown, and malfunction plan fails to address or inadequately addresses an event that meets the characteristics of a malfunction but was not included in the startup, shutdown, and malfunction plan at the time the owner or operator developed the plan, the owner or operator must revise the startup, shutdown, and malfunction plan within 45 days after the event to include detailed procedures for operating and maintaining the unit during similar malfunction events and a program of corrective action for similar malfunctions of process or air pollution control and monitoring equipment. In the event the owner or operator makes any revision to the startup, shutdown, and malfunction plan which alters the scope of the activities at the unit which are deemed to be a startup, shutdown, or malfunction, or otherwise modifies the applicability of any emission limit, work practice requirement, or other requirement, the revised plan shall not take effect until after the owner or operator has provided a written notice describing the revision to the Secretary.

Any revisions made to the startup, shutdown, and malfunction plan in accordance with the procedures established in this permit condition shall not be deemed to constitute permit revisions under chapter 3.0 of this permit.

9.32 Semiannual excess emissions report

In accordance with ARSD 74:36:08:26, as reference to 40 CFR § 63.1516(b), the owner or operator shall submit a semiannual report. The owner or operator shall submit the semiannual reports within 60 days after the end of each calendar half (i.e., January through June and July through December). The following shall be reported in the semiannual report:

1. Name, title, and signature of the responsible official who is certifying to the accuracy of the report;

2. The following shall be reported for each startup, shutdown, or malfunction that occurred during the reporting period and resulted in an exceedance of an applicable emission limit when the owner or operator followed the startup, shutdown and malfunction plan:
 - a. Summarize the actions taken during the startup, shutdown, or malfunction that verify the procedures in the plan were followed;
 - b. Summarize actions taken to minimize emissions during such startups, shutdowns, and malfunctions. The summary may be done in checklist form and if actions taken are the same for each event, only one checklist is necessary;
 - c. The number, duration, and a brief description of each malfunction which occurred during the reporting period and caused or may have caused an applicable emission limit to be exceeded;
3. An emission unit was not operated according to the requirements of this chapter;
4. A deviation from the 3-day, 24-hour rolling average emission limit for a secondary aluminum processing unit;
5. The results of any performance test conducted during the reporting period, including one complete report documenting test methods and procedures, process operation, and monitoring parameter ranges or values for each test method used for a particular type of emission unit tested; and
6. Each report must state, "Only nonreactive, non-hazardous air pollutant-containing, non-hazardous air pollutant generating flux gases, agents, or materials were used at any time during this reporting period."

If no deviations of parameters have occurred, the owner or operator shall submit a report stating that no excess emissions occurred during the reporting period.

9.33 Secondary aluminum recordkeeping

In accordance with ARSD 74:36:08:26, as referenced to 40 CFR § 63.1517(b), the owner or operator shall maintain the following records:

1. For each unit subject to an emission standard in kilogram per megagram (pound per ton) of feed/charge, records of feed/charge (or throughput) weights for each operating cycle or time period used in the performance test;
2. Approved site-specific monitoring plan for Unit #1, #2, and #3 with records documenting conformance with the plan;
3. For each in-line fluxer for which the owner or operator has certified that no reactive flux was used:
 - a. Operating logs which establish that no source of reactive flux was present at the in-line fluxer;
 - b. Labels as required in permit condition 9.6 which establish that no reactive flux may be used at the in-line fluxer; or
 - c. Operating logs which document each flux gas, agent, or material used during each operating cycle;
4. Records of monthly inspections for proper unit labeling for each unit subject to labeling requirements;
5. Records for any approved alternative monitoring or test procedure;

6. Current copy of all required plans, including any revisions, with records documenting conformance with the applicable plan including
 - a. Startup, shutdown, and malfunction plan; and
 - b. Operation, maintenance, and monitoring plan; and
7. For each secondary aluminum processing unit, records of total charge weight, or if the owner or operator chooses to comply on the basis of aluminum production, total aluminum produced for each 24-hour period and calculations of 3-day, 24-hour rolling average emissions.

10.0 Surface Coating of Miscellaneous Metal Parts and Products

10.1 Coverage

In accordance with ARSD 74:36:08:37, as referenced to 40 CFR § 63.3882(b), the operations and equipment covered in this chapter for surface coating of miscellaneous metal parts and products consist of the following:

1. All coating operations;
2. All storage containers and mixing vessels in which coatings, thinners and/or other additives, and cleaning materials are stored or mixed;
3. All manual and automated equipment and containers used for conveying coatings, thinners and/or other additives, and cleaning materials; and
4. All storage containers and all manual and automated equipment and containers used for conveying waste materials generated by a coating operation.

Coating operation means equipment used to apply cleaning materials to a substrate to prepare it for coating application (surface preparation) or to remove dried coating; to apply coating to a substrate (coating application) and to dry or cure the coating after application; or to clean coating operation equipment (equipment cleaning). A single coating operation may include any combination of these types of equipment, but always includes at least the point at which a given quantity of coating or cleaning material is applied to a given part and all subsequent points where organic hazardous air pollutants are emitted from the specific quantity of coating or cleaning material on the specific part. Coating application with handheld, non-refillable aerosol containers, touch-up markers, or marking pens is not considered a coating operation.

A. Emission Limits

10.2 Organic hazardous air pollutant emission limits

In accordance with ARSD 74:36:08:37, as referenced to 40 CFR § 63.3890(b), the owner or operator shall limit organic hazardous air pollutant emissions to the atmosphere from the operations specified in permit condition 10.1 to the following applicable emissions limits, except as specified in permit condition 10.3:

1. For each general use coating, limit organic hazardous air pollutant emissions to no more than 0.31 kilograms (2.6 pounds) organic hazardous air pollutant per liter (gallon) coating solids used during each 12-month compliance period;
2. For each high performance coating, limit organic hazardous air pollutant emissions to no more than 3.3 kilograms (27.5 pounds) organic hazardous air pollutant per liter (gallon) coating solids used during each 12-month compliance period;
3. For each magnet wire coating, limit organic hazardous air pollutant emissions to no more than 0.12 kilograms (1.0 pounds) organic hazardous air pollutant per liter (gallon) coating solids used during each 12-month compliance period;
4. For each rubber-to-metal coating, limit organic hazardous air pollutant emissions to no more than 4.5 kilograms (37.7 pounds) organic hazardous air pollutant per liter (gallon) coating solids used during each 12-month compliance period; and
5. For each extreme performance fluoropolymer coating, limit organic hazardous air pollutant emissions to no more than 1.5 kilograms (12.4 pounds) organic hazardous air pollutant per liter (gallon) coating solids used during each 12-month compliance period.

The owner or operator shall determine compliance according to the applicable requirements in permit conditions 10.15 through 10.28 and 10.30 through 10.40.

10.3 Alternative emission limit options

In accordance with ARSD 74:36:08:37 as referenced to 40 CFR § 63.3890(c), if the owner's or operator's surface coating operations meet the applicability criteria of more than one of the paragraphs in permit condition 10.2, the owner or operator may comply using one of the following predominant activity alternatives:

1. If the general use or magnet wire surface coating operations subject to only one of the emission limits specified in paragraph (1) or (3) of permit conditions 10.2 accounts for 90 percent or more of the surface coating activity, then compliance with that one emission limitations in permit condition 10.2 for all surface coating operations constitutes compliance with the other applicable emission limits in permit condition 10.2. The owner or operator must use liters (gallons) of solids used as a measure of relative surface coating activity over a representative period of operation. The owner or operator may estimate the relative volume of coating solids used from parameters other than coating consumption and volume solids content (i.e., design specifications for the parts or products coated and the number of items produced). The determination of predominant activity must accurately reflect current and projected coating operations and must be verifiable through appropriate documentation. The use of parameters other than coating consumption and volume solids content must be approved by the Secretary. The owner or operator may use data for any reasonable time period of at least 1 year in determining the relative amount of coating activity, as long as it represents the way the coating operations will continue to operate in the future and are approved by the Secretary. The owner or operator must determine the predominant activity annually and include the determination in the next semiannual compliance report; and
2. The owner or operator may calculate and comply with a facility-specific emission limit as described below. If the owner or operator elects to comply using the facility-specific

emission limit alternative, then compliance with the facility-specific emission limit constitutes compliance with permit condition 10.2. In calculating a facility-specific emission limit, the owner or operator must include coating activities that meet the applicability criteria of the other subcategories and constitute more than 1 percent of total coating activities.

- a. The owner or operator is required to calculate the facility-specific emission limit on a monthly basis using the coating data for the relevant 12-month compliance period; and
- b. Use Equation 10-1 to calculate the facility-specific emission limit for the surface coating operations for each 12-month compliance period.

Equation 10-1- Facility specific emission limit

$$\text{Facility – Specific Emission Limit} = \frac{\sum_{i=1}^n (\text{Limit}_i)(\text{Solids}_i)}{\sum_{i=1}^n (\text{Solids}_i)}$$

Where:

- Facility-specific emission limit = Facility-specific emission limit for each 12-month compliance period, in kilograms (pounds) organic hazardous air pollutant per kilograms (pounds) coating solids used;
- Limit_i = The emission limit applicable to coating operation, i, included in the facility-specific emission limit, converted to kilograms (pounds) organic hazardous air pollutant per kilograms (pounds) coating solids used, if the emission limit is not already in those units. All emission limits included in the facility-specific emission limit must be in the same units;
- Solids_i = The liters (gallons) of solids used in coating operation, i, in the 12-month compliance period that is subject to emission limit, i. The owner or operator may estimate the volume of coating solids used from parameters other than coating consumption and volume solids content (i.e., design specifications for the parts or products coated and the number of items produced). The use of parameters other than coating consumption and volume solids content must be approved by the Secretary; and
- n = The number of different coating operations included in the facility-specific emission limit.

10.4 Compliance options for meeting emission limits

In accordance with ARSD 74:36:08:37, as referenced to 40 CFR § 63.3891, the owner or operator must include all coatings, thinners and/or other additives, and cleaning materials used when determining whether the organic hazardous air pollutant emission rate is equal to or less than the applicable emission limit in permit condition 10.2. To make this determination, the owner or operator must use at least one of the following compliance options:

1. Demonstrate the organic hazardous air pollutant content of each coating used in the coating operation(s) is less than or equal to the applicable emission limit in permit condition 10.2 and each thinner and/or other additive and cleaning material used contains no organic hazardous air pollutant. The owner or operator must meet all the requirements

of permit conditions 10.15 through 10.19 to demonstrate compliance with the applicable emission limit using this option;

2. Demonstrate that, based on the coatings, thinners and/or other additives, and cleaning materials used in the coating operation(s), the organic hazardous air pollutant emission rate for the coating operation(s) is less than or equal to the applicable emission limit in permit condition 10.2, calculated as a rolling 12-month emission rate and determined on a monthly basis. The owner or operator must meet all the requirements of permit conditions 10.20 through 10.28 to demonstrate compliance with the emission limit using this option; and/or
3. Demonstrate that, based on the coatings, thinners and/or other additives, and cleaning materials used in the coating operation(s), and the emissions reductions achieved by emission capture systems and add-on controls, the organic hazardous air pollutant emission rate for the coating operation(s) is less than or equal to the applicable emission limit in permit condition 10.2, calculated as a rolling 12-month emission rate and determined on a monthly basis. If the owner or operator use this compliance option, the owner or operator must also demonstrate that all emission capture systems and add-on control devices for the coating operation(s) meet the operating limits required in permit condition 10.5, except for solvent recovery systems for which the owner or operator conduct liquid-liquid material balances according to permit condition 10.36 and the owner or operator meets the work practice standards required in permit condition 10.6. The owner or operator must meet all the requirements of permit conditions 10.30 through 10.51 to demonstrate compliance with the emission limits, operating limits, and work practice standards using this option.

The owner or operator may apply any of the compliance options to an individual coating operation, or to multiple coating operations as a group, or to the entire coating operations. The owner or operator may use different compliance options for different coating operations, or at different times on the same coating operation. The owner or operator may employ different compliance options when different coatings are applied to the same part, or when the same coating is applied to different parts. However, the owner or operator may not use different compliance options at the same time on the same coating operation. If the owner or operator switch between compliance options for any coating operation or group of coating operations, the owner or operator must document this switch as required by paragraph (5) of permit condition 10.13, and the owner or operator must report it in the next semiannual compliance report required in permit condition 10.9.

10.5 Operating limits for complying with emission rate with add-on controls option

In accordance with ARSD 74:36:08:37, as referenced to 40 CFR § 63.3892, for any controlled coating operation(s) on which the owner or operator use the emission rate with add-on controls option, except those for which the owner or operator use a solvent recovery system and conduct a liquid-liquid material balance according to permit condition 10.36, the owner or operator must meet the operating limits specified in Table 10-1. The owner or operator must establish the operating limits during the performance test according to the requirements in permit condition 10.44. The owner or operator must meet the operating limits at all times after the owner or operator establishes them. If the owner or operator use an add-on control device other than those

listed in Table 10-1, or wish to monitor an alternative parameter and comply with a different operating limit, the owner or operator must apply to the Secretary for approval of alternative monitoring under 40 CFR § 63.8(f).

Table 10-1 – Operating Limits if Using the Emission Rate With Add-On Controls Option

For the following device . . .	The owner or operator must meet the following operating limit . . .	And the owner or operator must demonstrate continuous compliance with the operating limit by . . .
1. Thermal oxidizer	a. The average combustion temperature in any 3-hour period must not fall below the combustion temperature limit established according to paragraph (1) of permit condition 10.44.	i. Collecting the combustion temperature data according to permit condition 10.47; ii. Reducing the data to 3-hour block averages; and iii. Maintaining the 3-hour average combustion temperature at or above the temperature limit.
2. Catalytic oxidizer	a. The average temperature measured just before the catalyst bed in any 3-hour period must not fall below the limit established according to paragraph (2) of permit condition 10.44 (for magnet wire coating machines, temperature can be monitored before or after the catalyst bed); and either	i. Collecting the temperature data according to permit condition 10.47; ii. Reducing the data to 3-hour block averages; and iii. Maintaining the 3-hour average temperature before (for magnet wire coating machines before or after) the catalyst bed at or above the temperature limit.
	b. Ensure the average temperature difference across the catalyst bed in any 3-hour period does not fall below the temperature difference limit established according to permit condition 10.44(2)(b); or	i. Collecting the temperature data according to permit condition 10.47; ii. Reducing the data to 3-hour block averages; and iii. Maintaining the 3-hour average temperature difference at or above the temperature difference limit.
	c. Develop and implement an inspection and maintenance plan according to permit condition 10.44(2)(d) or for magnet wire coating machines according to 40 CFR, Part 63, Subpart Mmmm Appendix A, Section 3.0.	i. Maintaining an up-to-date inspection and maintenance plan, records of annual catalyst activity checks, records of monthly inspections of the oxidizer system, and records of the annual internal inspections of the catalyst bed. If a problem is discovered during a monthly or annual inspection required by permit condition 10.44(2)(d) or for

For the following device . . .	The owner or operator must meet the following operating limit . . .	And the owner or operator must demonstrate continuous compliance with the operating limit by . . .
		magnet wire coating machines by 40 CFR, Part 63, Subpart Mmmm Appendix A, Section 3.0., the owner or operator must take corrective action as soon as practicable consistent with the manufacturer's recommendations.
3. Regenerative carbon adsorber	a. The total regeneration desorbing gas (i.e., steam or nitrogen) mass flow for each carbon bed regeneration cycle must not fall below the total regeneration desorbing gas mass flow limit established according to paragraph (3) of permit condition 10.44; and	i. Measuring the total regeneration desorbing gas (i.e., steam or nitrogen) mass flow for each regeneration cycle according to permit condition 10.48; and ii. Maintaining the total regeneration desorbing gas mass flow at or above the mass flow limit.
	b. The temperature of the carbon bed, after completing each regeneration and any cooling cycle, must not exceed the carbon bed temperature limit established according to paragraph (3) of permit condition 10.44.	i. Measuring the temperature of the carbon bed after completing each regeneration and any cooling cycle according to permit condition 10.48; and ii. Operating the carbon beds such that each carbon bed is not returned to service until completing each regeneration and any cooling cycle until the recorded temperature of the carbon bed is at or below the temperature limit.
4. Condenser	a. The average condenser outlet (product side) gas temperature in any 3-hour period must not exceed the temperature limit established according to paragraph (4) of permit condition 10.44.	i. Collecting the condenser outlet (product side) gas temperature according to permit condition 10.49; ii. Reducing the data to 3-hour block averages; and iii. Maintaining the 3-hour average gas temperature at the outlet at or below the temperature limit.
5. Concentrators, including zeolite wheels and rotary carbon adsorbers	a. The average gas temperature of the desorption concentrate stream in any 3-hour period must not fall below the limit established	i. Collecting the temperature data according to permit condition 10.50; ii. Reducing the data to 3-hour block averages; and

For the following device . . .	The owner or operator must meet the following operating limit . . .	And the owner or operator must demonstrate continuous compliance with the operating limit by . . .
	according to paragraph (5) of permit condition 10.44; and	iii. Maintaining the 3-hour average temperature at or above the temperature limit.
	b. The average pressure drop of the dilute stream across the concentrator in any 3-hour period must not fall below the limit established according to paragraph (5) of permit condition 10.44.	i. Collecting the pressure drop data according to permit condition 10.50; ii. Reducing the pressure drop data to 3-hour block averages; and iii. Maintaining the 3-hour average pressure drop at or above the pressure drop limit.
6. Emission capture system that is a permanent total enclosure according to paragraph (1) of permit condition 10.42	a. The direction of the air flow at all times must be into the enclosure; and either:	i. Collecting the direction of air flow, and either the facial velocity of air through all natural draft openings according to paragraph (1) of permit condition 10.46 or the pressure drop across the enclosure according to paragraph (2) of permit condition 10.51; and ii. Maintaining the facial velocity of air flow through all natural draft openings or the pressure drop at or above the facial velocity limit or pressure drop limit, and maintaining the direction of air flow into the enclosure at all times.
	b. The average facial velocity of air through all natural draft openings in the enclosure must be at least 200 feet per minutes; or	i. See items 6.a.i and 6.a.ii.
	c. The pressure drop across the enclosure must be at least 0.007 inch H ₂ O, as established in 40 CFR Part 51, Appendix M, Method 204.	i. See items 6.a.i and 6.a.ii.
7. Emission capture system that is not a permanent total enclosure according to paragraph (1) of	a. The average gas volumetric flow rate or duct static pressure in each duct between a capture device and add-on control device inlet in any 3-hour period must	i. Collecting the gas volumetric flow rate or duct static pressure for each capture device according to permit condition 10.51; ii. Reducing the data to 3-hour block

For the following device . . .	The owner or operator must meet the following operating limit . . .	And the owner or operator must demonstrate continuous compliance with the operating limit by . . .
permit condition 10.42	not fall below the average volumetric flow rate or duct static pressure limit established for that capture device according to paragraph (6) of permit condition 10.44.	averages; and iii. Maintaining the 3-hour average gas volumetric flow rate or duct static pressure for each capture device at or above the gas volumetric flow rate or duct static pressure limited.

10.6 Work practices for complying with emission rate with add-on controls option

In accordance with ARSD 74:36:08:37, as referenced to 40 CFR § 63.3893, the owner or operator must develop and implement a work practice plan to minimize organic hazardous air pollutant emissions from the storage, mixing, and conveying of coatings, thinners and/or other additives, and cleaning materials used in, and waste materials generated by the controlled coating operation(s). The plan must specify practices and procedures to ensure that, at a minimum, the following elements are implemented:

1. All organic hazardous air pollutant containing coatings, thinners and/or other additives, cleaning materials, and waste materials must be stored in closed containers;
2. Spills of organic hazardous air pollutant containing coatings, thinners and/or other additives, cleaning materials, and waste materials must be minimized;
3. Organic hazardous air pollutant containing coatings, thinners and/or other additives, cleaning materials, and waste materials must be conveyed from one location to another in closed containers or pipes;
4. Mixing vessels which contain organic hazardous air pollutant containing coatings and other materials must be closed except when adding to, removing, or mixing the contents; and
5. Emissions of organic hazardous air pollutant must be minimized during cleaning of storage, mixing, and conveying equipment.

The owner or operator may request permission from the Administrator of EPA for an alternative work practice standard.

B. General Compliance Requirements

10.7 General compliance requirements

In accordance with ARSD 74:36:08:37, as referenced to 40 CFR § 63.3900(a), the owner or operator must be in compliance with the emission limits in this chapter as specified below:

1. Any coating operation for which the owner or operator uses the compliant material option or the emission rate without add-on controls option, as specified in paragraph (1) and (2)

- of permit condition 10.4, must be in compliance with the applicable emission limit in permit condition 10.2 at all times; and
2. Any coating operation for which the owner or operator uses the emission rate with add-on controls option, as specified in paragraph (3) of permit condition 10.4, must be in compliance with the emission limits as specified below:
 - a. The coating operation must be in compliance with the applicable emission limit in permit condition 10.2 at all times except during periods of startup, shutdown, and malfunction;
 - b. The coating operation must be in compliance with the operating limits for emission capture systems and add-on control devices required by permit condition 10.5 at all times except during periods of startup, shutdown, and malfunction, and except for solvent recovery systems for which the owner or operator conducts liquid-liquid material balances according to permit condition 10.36; and
 - c. The coating operation must be in compliance with the work practice standards in permit condition 10.6 at all times.

10.8 Minimizing emissions from coating operations

In accordance with ARSD 74:36:08:03 and 74:36:08:37, as referenced to 40 CFR §§ 63.6(e)(1)(i) and 63.3900(b), respectively, the owner or operator must at all times, including period of startup, shutdown, and malfunction, operate and maintain the coating operations, including associated air pollution control equipment and monitoring equipment, in a manner consistent with safety and good air pollution control practices for minimizing emissions. During a period of startup, shutdown, or malfunction, this general duty to minimize emissions requires the owner or operator reduce emissions from the coating operations 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 (including the startup, shutdown, and malfunction plan required in permit condition 10.9, review of operation and maintenance records, and inspection of the source.

10.9 Startup shutdown and malfunction plan for capture and control device

In accordance with ARSD 74:36:08:03 and 74:36:08:37, as referenced to 40 CFR §§ 63.6(e)(3) and 63.3900(c), respectively, if the owner or operator uses an emission capture system and add-on control device, the owner or operator must develop a written startup, shutdown, and malfunction plan. The plan must address the startup, shutdown, and corrective actions in the event of a malfunction of the emission capture system or the add-on control device. The plan must also address any coating operation equipment that may cause increased emissions or that would affect capture efficiency if the process equipment malfunctions, such as conveyors that move parts among enclosures. The plan does not need to address any scenario that would not

cause an exceedance of an applicable emission limitation in this chapter. The plan must be developed by the initial startup of an emission capture system and add-on control device. The startup, shutdown, and malfunction plan shall:

1. Ensure that, at all times, the owner or operator operates and maintains each coating operation, including associated air pollution control and monitoring equipment, in a manner which satisfies the general duty to minimize emissions established in permit condition 10.8; and
2. Ensure the owner or operator is prepared to correct malfunctions as soon as practicable after their occurrence in order to minimize excess emissions of hazardous air pollutants.

C. Reporting and Recordkeeping

10.10 Semiannual compliance report

In accordance with ARSD 74:36:08:37, as referenced to 40 CFR § 63.3920(a) and (c)(1), the owner or operator must submit a semiannual compliance report to the Secretary which contains the following:

1. Company name and address;
2. Statement by a responsible official with that official's name, title, and signature, certifying the truth, accuracy, and completeness of the content of the report;
3. Date of report and beginning and ending dates of the reporting period. The reporting period is the 6-month period ending on June 30 or December 31. The information reported for each of the 6 months in the reporting period will be based on the last 12 months of data prior to the date of each monthly calculation;
4. Identification of the compliance option or options specified in permit condition 10.4 the owner or operator used on each coating operation during the reporting period. If the owner or operator switched between compliance options during the reporting period, the beginning and ending dates for each option the owner or operator used must be reported;
5. If the owner or operator used the emission rate without add-on controls or the emission rate with add-on controls compliance option, the calculation results for each rolling 12-month organic hazardous air pollutant emission rate during the 6-month reporting period;
6. If the owner or operator used the predominant activity alternative in permit condition 10.3(1), include the annual determination of predominant activity if it was not included in the previous semiannual compliance report;
7. If the owner or operator used the facility-specific emission limit alternative in permit condition 10.3(2), include the calculation of the facility-specific emission limit for each 12-month compliance period during the 6-month reporting period;
8. If there were no deviations from the emission limits in permit conditions 10.2, 10.3, 10.5, and 10.6 that apply, the semiannual compliance report must include a statement there were no deviations from the emission limits during the reporting period. If the owner or operator used the emission rate with add-on controls option and there were no periods during which the continuous parameter monitoring systems were out-of-control as specified in 40 CFR § 63.8(c)(7), the semiannual compliance report must include a

- statement that there were no periods during which the continuous parameter monitoring systems were out-of-control during the reporting period;
9. If the owner or operator used the compliant material option and there was a deviation from the applicable organic hazardous air pollutant content requirements, the semiannual compliance report must contain the following information:
 - a. Identification of each coating used that deviated from the applicable emission limit, and each thinner and/or other additive, and cleaning material used that contained organic hazardous air pollutants, and the dates and time periods each was used;
 - b. The calculation of the organic hazardous air pollutant content using Equation 10-3 for each coating identified in permit condition 10.10(9)(a). The owner or operator does not need to submit background data supporting this calculation (i.e., information provided by coating suppliers or manufacturers, or test reports);
 - c. The determination of mass fraction of organic hazardous air pollutant for each thinner and/or other additive, and cleaning material identified in permit condition 10.10(9)(a); and
 - d. A statement of the cause of each deviation;
 10. If the owner or operator used the emission rate without add-on controls option and there was a deviation from the applicable emission limit, the semiannual compliance report must contain the following information:
 - a. The beginning and ending dates of each compliance period during which the 12-month organic hazardous air pollutant emission rate exceeded the applicable emission limit;
 - b. The calculations used to determine the 12-month organic hazardous air pollutant emission rate for the compliance period in which the deviation occurred. The owner or operator must submit the calculations for Equations 10-4 through 10-9; and if applicable, the calculation used to determine mass of organic hazardous air pollutant in waste materials according to permit condition 10.25; and
 - c. A statement of the cause of each deviation;
 11. If the owner or operator used the emission rate with add-on controls option and there was a deviation from an emission limitation (including any periods when emissions bypassed the add-on control device and were diverted to the atmosphere), the semiannual compliance report must contain the following information. This includes periods of startup, shutdown, and malfunction during which deviations occurred:
 - a. The beginning and ending dates of each compliance period during which the 12-month organic hazardous air pollutant emission rate exceeded the applicable emission limit;
 - b. The calculations used to determine the 12-month organic hazardous air pollutant emission rate for each compliance period in which a deviation occurred. The owner or operator must provide the calculation of:
 - i. the total mass of organic hazardous air pollutant emissions for the coatings, thinners and/or other additives, and cleaning materials used each month using Equations 10-4 through 10-7;
 - ii. if applicable, the calculation used to determine mass of organic hazardous air pollutant in waste materials according to permit condition 10.25;

- iii. the calculation of the total volume of coating solids used each month using Equation 10-8;
 - iv. the calculation of the mass of organic hazardous air pollutant emission reduction each month by emission capture systems and add-on control devices using Equations 10-10 through 10-19, as applicable;
 - v. the calculation of the total mass of organic hazardous air pollutant emissions each month using Equation 10-20; and
 - vi. the calculation of the 12-month organic hazardous air pollutant emission rate using Equation 10-21;
- c. The date and time that each malfunction started and stopped;
 - d. A brief description of the continuous parameter monitoring system;
 - e. The date of the latest continuous parameter monitoring system certification or audit;
 - f. The date and time that each continuous parameter monitoring system was inoperative, except for zero (low-level) and high-level checks;
 - g. The date, time, and duration that each continuous parameter monitoring system was out-of-control, including the information in 40 CFR § 63.8(c)(8);
 - h. The date and time period of each deviation from an operating limit in Table 10-1, date and time period of any bypass of the add-on control device, and whether each deviation occurred during a period of startup, shutdown, or malfunction or during another period;
 - i. A summary of the total duration of each deviation from an operating limit in Table 10-1 and each bypass of the add-on control device during the semiannual reporting period, and the total duration as a percent of the total source operating time during that semiannual reporting period;
 - j. A breakdown of the total duration of the deviations from the operating limits in Table 10-1 and bypasses of the add-on control device during the semiannual reporting period into those that were due to startup, shutdown, control equipment problems, process problems, other known causes, and other unknown causes;
 - k. A summary of the total duration of continuous parameter monitoring system downtime during the semiannual reporting period and the total duration of continuous parameter monitoring system downtime as a percent of the total source operating time during that semiannual reporting period;
 - l. A description of any changes in the continuous parameter monitoring system, coating operation, emission capture system, or add-on control device since the last semiannual reporting period;
 - m. For each deviation from the work practice standards, a description of the deviation, the date and time period of the deviation, and the actions the owner or operator took to correct the deviation; and
 - n. A statement of the cause of each deviation;
12. For deviations related to paragraph (9), (10), and (11) of permit conditions 10.10, the owner or operator does not need to submit the background data supporting the appropriate calculation (i.e., information provided by materials suppliers or manufacturers, or test reports); and
13. If the owner or operator uses the emission rate with add-on controls option and an exceedance of an applicable emission limit occurred during startup, shutdown, or

malfunction (including actions taken to correct the malfunction) and the owner's or operator's actions were consistent with the startup, shutdown, and malfunction plan, the owner or operator must include the information specified in 40 CFR § 63.10(d) in the semiannual compliance report.

The semiannual reports must be postmarked no later than 30 days after the end of the reporting period (i.e., July 30th and January 30th) and if applicable, may be combined with any other semiannual report required in this permit.

10.11 Immediate startup, shutdown, and malfunction report

In accordance with ARSD 74:36:08:37, as referenced to 40 CFR § 63.3920(c)(2), if the owner or operator uses the emission rate with add-on controls option and the owner's or operator's actions during a startup, shutdown or malfunction were not consistent with the startup, shutdown or malfunction plan (including actions taken to correct a malfunction) resulted in an exceedance of an applicable emission limit in this chapter, the owner or operator must submit an immediate startup, shutdown, and malfunction report. The incident must be reported to the Secretary within 2 working days after the end of the event by facsimile, telephone, or other means followed by a written report within 7 working days after the end of the event. The written report must consist of the following:

1. Name, title, and signature of the owner or operator or other responsible official who is certifying its accuracy;
2. Explaining the circumstances of the event;
3. The reasons for not following the startup, shutdown, and malfunction plan;
4. Describing all excess emissions and/or parameter monitoring exceedances which are believed to have occurred (or could have occurred in the case of malfunctions); and
5. Actions taken to minimize emissions in conformance with permit condition 10.8.

The owner or operator may make alternative reporting arrangements, in advance, with the Secretary by submitting a written request as soon as practicable before the immediate startup, shutdown, and malfunction report is required to take place which includes whatever information the owner or operator considers useful to convince the Secretary that an adjustment is necessary. The Secretary will notify the owner or operator in writing of the approval or disapproval of the request for adjustment within 15 calendar days of receiving the request.

10.12 Performance test report submittals

In accordance with ARSD 74:36:08:37, as referenced to 40 CFR § 63.3920(b), if the owner or operator uses the emission rate with add-on controls option, the owner or operator must submit reports of performance test results for emission capture systems and add-on control devices no later than 60 days after completing the tests as specified in 40 CFR § 63.10(d)(2).

10.13 Surface coating recordkeeping

In accordance with ARSD 74:36:08:37, as referenced to 40 CFR § 63.3930, the owner or operator must collect and keep records of the following:

1. A copy of each notification and report submitted to comply with this chapter and the documentation supporting each notification and report;
2. If the owner or operator is using the predominant activity alternative under permit condition 10.3, the owner or operator must keep records of the data and calculations used to determine the predominant activity;
3. If the owner or operator is using the facility-specific emission limit alternative under permit condition 10.3, the owner or operator must keep records of any data used in each annual predominant activity determination and in the calculation of the facility-specific emission limit for each 12-month compliance period included in the semiannual compliance reports;
4. A current copy of information provided by materials suppliers or manufacturers, such as manufacturer's formulation data, or test data used to determine the mass fraction of organic hazardous air pollutants and density for each coating, thinner and/or other additive, and cleaning material, and the volume fraction of coating solids for each coating. If the owner or operator conducted testing to determine mass fraction of organic hazardous air pollutants, density, or volume fraction of coating solids, a copy of the complete test report must be kept. If the information provided by the manufacturer or supplier of the material is based on testing, the owner or operator must keep the summary sheet of results provided by the manufacturer or supplier. The owner or operator are not required to obtain the test report or other supporting documentation from the manufacturer or supplier;
5. The following for each compliance period:
 - a. A record of the coating operations on which each compliance option and the time periods (beginning and ending dates and times) for each option used;
 - b. For the compliant material option, a record of the calculation of the organic hazardous air pollutant content for each coating, using Equation 10-3;
 - c. For the emission rate without add-on controls option, a record of the calculation of the total mass of organic hazardous air pollutant emissions for the coatings, thinners and/or other additives, and cleaning materials used each month using Equations 10-4 through 10-8; and, if applicable, the calculation used to determine mass of organic hazardous air pollutants in waste materials according to permit condition 10.25; the calculation of the total volume of coating solids used each month using Equation 10-8, and the calculation of each 12-month organic hazardous air pollutant emission rate using Equation 10-9; and
 - d. For the emission rate with add-on controls option, records of the following calculations:
 - i. The calculation of the total mass of organic hazardous air pollutant emissions for the coatings, thinners and/or other additives, and cleaning materials used each month using Equations 10-4 through 10-7 and, if applicable, the calculation used to determine mass of organic hazardous air pollutant in waste materials according to permit condition 10.25;
 - ii. The calculation of the total volume of coating solids used each month using Equation 10-8;

- iii. The calculation of the mass of organic hazardous air pollutant emission reduction by emission capture systems and add-on control devices using Equations 10-10 through 10-19, as applicable;
 - iv. The calculation of each month's organic hazardous air pollutant emission rate using Equation 10-20; and
 - v. The calculation of each 12-month organic hazardous air pollutant emission rate using Equation 10-21;
- 6. A record of the name and volume of each coating, thinner and/or other additive, and cleaning material used during each compliance period. If the owner or operator are using the compliant material option for all coatings at the source, the owner or operator may maintain purchase records for each material used rather than a record of the volume used;
- 7. A record of the mass fraction of organic hazardous air pollutant for each coating, thinner and/or other additive, and cleaning material used during each compliance period unless the material is tracked by weight;
- 8. A record of the volume fraction of coating solids for each coating used during each compliance period;
- 9. If the owner or operator uses either the emission rate without add-on controls or the emission rate with add-on controls compliance option, the density for each coating, thinner and/or other additive, and cleaning material used during each compliance period;
- 10. If the owner or operator uses an allowance in Equation 10-4 for organic hazardous air pollutant contained in waste materials sent to or designated for shipment to a treatment, storage, and disposal facility according to permit condition 10.25, the owner or operator must maintain the following records:
 - a. The name and address of each treatment, storage, and disposal facility to which the owner or operator sent waste materials for which an allowance in Equation 10-4 was used;
 - b. A statement of which subparts under 40 CFR Part 262, 264, 265, and 266 apply and the date of each shipment;
 - c. Identification of the coating operations producing waste materials included in each shipment and the month or months in which the allowance for these materials in Equation 10-4 was used; and
 - d. The methodology used in accordance with permit condition 10.25 to determine the total amount of waste materials sent to or the amount collected, stored, and designated for transport to a treatment, storage, and disposal facility each month and the methodology to determine the mass of organic hazardous air pollutant contained in these waste materials. This must include the sources for all data used in the determination, methods used to generate the data, frequency of testing or monitoring, and supporting calculations and documentation, including the waste manifest for each shipment;
- 9. The owner or operator must keep records of the date, time, and duration of each deviation;
- 10. If the emission rate with add-on controls option is used, the owner or operator must keep the following records:
 - a. For each deviation, a record of whether the deviation occurred during a period of startup, shutdown, or malfunction;

- b. The records in 40 CFR § 63.6(e)(3)(iii) through (v) related to startup, shutdown, and malfunction;
- c. The records required to show continuous compliance with each operating limit specified in Table 10-1 that applies;
- d. For each capture system that is a permanent total enclosure, the data and documentation the owner or operator used to support a determination that the capture system meets the criteria in 40 CFR Part 51, Appendix M, Method 204 for a permanent total enclosure and has a capture efficiency of 100 percent, as specified in paragraph (1) of permit condition 10.42;
- e. For each capture system that is not a permanent total enclosure, the data and documentation the owner or operator used to determine capture efficiency according to the requirements specified in permit condition 10.41 and paragraph (2) through (5) of permit condition 10.42, including the following records that are applicable:
 - i. For liquid-to-uncaptured gas protocol, records of the mass of total volatile hydrocarbon as measured by 40 CFR Part 51, Appendix M, Method 204A or 204F for each material used in the coating operation, and the total volatile hydrocarbon for all materials used during each capture efficiency test run, including a copy of the test report. Records of the mass of total volatile hydrocarbon emissions not captured by the capture system that exited the temporary total enclosure or building enclosure during each capture efficiency test run, including a copy of the test report. Records documenting the enclosure used for the capture efficiency test met the criteria in 40 CFR Part 51, Appendix M, Method 204 for either a temporary total enclosure or a building enclosure;
 - ii. For gas-to-gas protocol, records of the mass of total volatile hydrocarbon emissions captured by the emission capture system as measured by 40 CFR Part 51, Appendix M, Method 204B or 204C at the inlet to the add-on control device, including a copy of the test report. Records of the mass of total volatile hydrocarbon emissions not captured by the capture system that exited the temporary total enclosure or building enclosure during each capture efficiency test run as measured by 40 CFR Part 51, Appendix M, Method 204D or 204E, including a copy of the test report. Records documenting the enclosure used for the capture efficiency test met the criteria in 40 CFR Part 51, Appendix M, Method 204 for either a temporary total enclosure or a building enclosure; and
 - iii. For an alternative protocol, records needed to document a capture efficiency determination using an alternative method or protocol as specified in paragraph (5) of permit condition 10.42, if applicable;
- f. The following records for each add-on control device organic hazardous air pollutant destruction or removal efficiency determination as specified in permit condition 10.43:
 - i. Records of each add-on control device performance test conducted according to permit conditions 10.41 and 10.43; and
 - ii. Records of the coating operation conditions during the add-on control device performance test showing the performance test was conducted under representative operating conditions;

- g. Records of the data and calculations the owner or operator used to establish the emission capture and add-on control device operating limits as specified in permit condition 10.44 and to document compliance with the operating limits as specified in Table 10-1; and
- h. A record of the work practice plan required by permit condition 10.6 and documentation that the owner or operator is implementing the plan on a continuous basis.

Failure to collect and keep these records is a deviation from the applicable standard.

10.14 Form and duration of recordkeeping

In accordance with ARSD 74:36:08:37, as referenced to 40 CFR § 63.3931, the owner or operator must maintain the records in this chapter in a form suitable and readily available for expeditious review. The records may be maintained as electronic spreadsheets or as a database. The owner or operator must keep each record for 5 years following the date of each occurrence, measurement, maintenance, corrective action, report, or record. Records must be kept on-site for at least 2 years after the date of each occurrence, measurement, maintenance, corrective action, report, or record. Records may be kept off-site for the remaining 3 years.

D. Compliance with Compliant Material Option

10.15 Determine mass fraction of organic hazardous air pollutant

In accordance with ARSD 74:36:08:37, as referenced to 40 CFR § 63.3941(a), the owner or operator must determine the mass fraction of organic hazardous air pollutant for each coating, thinner and/or other additive, and cleaning material used during the compliance period by using one of the following options:

1. The owner or operator may use 40 CFR Part 63, Appendix A, Method 311 for determining the mass fraction of organic hazardous air pollutant using the following procedures:
 - a. Count each organic hazardous air pollutant that is measured to be present at 0.1 percent by mass or more for Occupational Safety and Health Administration (OSHA) defined carcinogens as specified in 29 CFR § 199.1200(d)(4) and at 1.0 percent by mass or more for other compounds. For example, if toluene (not an OSHA carcinogen) is measured to be 0.5 percent of the material by mass, the owner or operator does not have to count it. Express the mass fraction of each organic hazardous air pollutant the owner or operator count as a value truncated to four places after the decimal point (i.e., 0.3791); and
 - b. Calculate the total mass fraction of organic hazardous air pollutant in the test material by adding up the individual organic hazardous air pollutant mass fractions and truncating the result to three places after the decimal point (i.e., 0.379);
2. For coatings, the owner or operator may use 40 CFR Part 60, Appendix A, Method 24 to determine the mass fraction of nonaqueous volatile matter and use that value as a substitute for mass fraction of organic hazardous air pollutant. For reactive adhesives in which some of the hazardous air pollutant react to form solids and are not emitted to the

- atmosphere, the owner or operator may use the alternative method contained in 40 CFR Part 63, Subpart PPPP, Appendix A. The owner or operator may use the volatile fraction that is emitted, as measured by the alternative method in 40 CFR Part 63, Subpart PPPP, Appendix A, as a substitute for the mass fraction of organic hazardous air pollutant;
3. The owner or operator may use an alternative test method for determining the mass fraction of organic hazardous air pollutant once the Secretary has approved it. The owner or operator must follow the following procedures to submit an alternative test method for approval:
 - a. Notify the Secretary of the owner's or operator's intention to use an alternative test method at least 60 days before the performance test is scheduled to begin;
 - b. Uses 40 CFR Part 63, Appendix A, Method 301 to validate the alternative test method. This may include the use of specific procedures of Method 301 if use of such procedures are sufficient to validate the alternative test method; and
 - c. Submits the results of the Method 301 validation process along with the notification of intention and the justification for not using the specified test method;
 4. The owner or operator may rely on the manufacturer's formulation data, if it represents each organic hazardous air pollutant that is present at 0.1 percent by mass or more for OSHA-defined carcinogens as specified in 29 CFR § 199.1200(d)(4) and at 1.0 percent by mass or more for other compounds. For reactive adhesives in which some of the hazardous air pollutant react to form solids and are not emitted to the atmosphere, the owner or operator may rely on manufacturer's data that expressly states the organic hazardous air pollutant or volatile matter mass fraction emitted. If there is a disagreement between such information and results of a test conducted according to paragraph (1), (2), and (3) of permit condition 10.15, then the test method results will take precedence unless, after consultation, the owner or operator demonstrate to the satisfaction of the Secretary that the formulation data are correct; or
 5. Solvent blends may be listed as single components for some materials in data provided by manufacturers or suppliers. Solvent blends may contain organic hazardous air pollutant which must be counted toward the total organic hazardous air pollutant mass fraction of the materials. When test data and manufacturer's data for solvent blends are not available, the owner or operator may use the default values for the mass fraction of organic hazardous air pollutant in these solvent blends listed in Table 10-3 or 10-4. If the owner or operator use the tables, the owner or operator must use the values in Table 10-3 for all solvent blends that match Table 10-3 entries according to the instructions for Table 10-3, and the owner or operator may use Table 10-4 only if the solvent blends in the materials the owner or operator use do not match any of the solvent blends in Table 10-3 and the owner or operator knows only whether the blend is aliphatic or aromatic. However, if the results of a 40 CFR Part 63, Appendix A, Method 311 test indicate higher values than those listed on Table 10-3 or 10-4, the Method 311 results will take precedence unless, after consultation, the owner or operator demonstrate to the satisfaction of the enforcement agency that the formulation data are correct.

Table 10-3 – Default Organic HAP Mass Fraction for Solvents and Solvent Blends

Solvent/solvent blend	CAS. No.	Average mass fraction	Typical organic hazardous air pollutant, percent by mass
1. Toluene	108–88–3	1.0	Toluene
2. Xylene(s)	1330–20–7	1.0	Xylenes, ethylbenzene
3. Hexane	110–54–3	0.5	n-hexane
4. n-Hexane	110–54–3	1.0	n-hexane
5. Ethylbenzene	100–41–4	1.0	Ethylbenzene
6. Aliphatic 140		0	None
7. Aromatic 100		0.02	1% xylene, 1% cumene
8. Aromatic 150		0.09	Naphthalene
9. Aromatic naphtha	64742–95–6	0.02	1% xylene, 1% cumene
9. Aromatic solvent	64742–94–5	0.1	Naphthalene
10. Exempt mineral spirits	8032–32–4	0	None
12. Ligroines (VM & P)	8032–32–4	0	None
13. Lactol spirits	64742–89–6	0.15	Toluene
14. Low aromatic white spirit	64742–82–1	0	None
15. Mineral spirits	64742–88–7	0.01	Xylenes
16. Hydrotreated naphtha	64742–48–9	0	None
17. Hydrotreated light distillate	64742–47–8	0.001	Toluene
18. Stoddard solvent	8052–41–3	0.01	Xylenes
19. Super high-flash naphtha	64742–95–6	0.05	Xylenes
20. Varsol [®] solvent	8052–49–3	0.01	0.5% xylenes, 0.5% ethylbenzene
21. VM & P naphtha	64742–89–8	0.06	3% toluene, 3% xylene
22. Petroleum distillate mixture	68477–31–6	0.08	4% naphthalene, 4% biphenyl

Table 10-4 – Default Organic HAP Mass Fraction for Petroleum Solvent Groups ¹

Solvent type	Average organic hazardous air pollutant mass fraction	Typical organic hazardous air pollutant, percent by mass
Aliphatic ²	0.03	1% Xylene, 1% Toluene, and 1% Ethylbenzene
Aromatic ³	0.06	4% Xylene, 1% Toluene, and 1% Ethylbenzene

¹ – Use this table only if the solvent blend does not match any of the solvent blends in Table 3 to this subpart by either solvent blend name or CAS number and the owner or operator only know whether the blend is aliphatic or aromatic;

² – Mineral Spirits 135, Mineral Spirits 150 EC, Naphtha, Mixed Hydrocarbon, Aliphatic Hydrocarbon, Aliphatic Naphtha, Naphthol Spirits, Petroleum Spirits, Petroleum Oil, Petroleum Naphtha, Solvent Naphtha, Solvent Blend; and

³ – Medium-flash Naphtha, High-flash Naphtha, Aromatic Naphtha, Light Aromatic Naphtha, Light Aromatic Hydrocarbons, Aromatic Hydrocarbons, Light Aromatic Solvent.

10.16 Determine volume fraction of coating solids for each coating

In accordance with ARSD 74:36:08:37, as referenced to 40 CFR § 63.3941(b), the owner or operator must determine the volume fraction of coating solids, liters (gallons) of coating solids per liter (gallon) of coating, for each coating used during the compliance period by one of the following methods:

1. The owner or operator may use ASTM Method D2697–86 (Reapproved 1998), “Standard Test Method for Volume Nonvolatile Matter in Clear or Pigmented Coatings” or ASTM Method D6093–97 (Reapproved 2003), “Standard Test Method for Percent Volume Nonvolatile Matter in Clear or Pigmented Coatings Using a Helium Gas Pycnometer”, to determine the volume fraction of coating solids for each coating. The owner or operator shall divide the nonvolatile volume percent obtained with the methods by 100 to calculate volume fraction of coating solids;
2. The owner or operator may use an alternative test method for determining the solids content of each coating once the Administrator has approved it. The owner or operator must follow the procedure in paragraph (3) of permit condition 10.15 to submit an alternative test method for approval;
3. The owner or operator may obtain the volume fraction of coating solids for each coating from the supplier or manufacturer; or
4. The owner or operator may determine the volume fraction of coating solids using Equation 10-2.

Equation 10-2: Calculating volume fraction of coating solids

$$V_s = 1 - \frac{m_{\text{volatiles}}}{D_{\text{avg}}}$$

Where:

- V_s = Volume fraction of coating solids, liters (gallons) coating solids per liter (gallon) coating;
- $m_{\text{volatiles}}$ = Total volatile matter content of the coating, including hazardous air pollutants, volatile organic compounds (VOC), water, and exempt compounds, determined

according to 40 CFR Part 60, Appendix A, Method 24, in grams volatile matter per liter coating; and

- D_{avg} = Average density of volatile matter in the coating, in grams volatile matter per liter volatile matter, determined from test results using ASTM Method D1475–98, “Standard Test Method for Density of Liquid Coatings, Inks, and Related Products”, information from the supplier or manufacturer of the material, or reference sources providing density or specific gravity data for pure materials.

If test results obtained according to paragraph (1) of permit condition 10.16 do not agree with the information obtained under paragraph (2) through (4) of permit conditions 10.16, the test results will take precedence unless, after consultation, the owner or operator demonstrates to the satisfaction of the Secretary that the formulation data are correct.

10.17 Determine the density of each coating

In accordance with ARSD 74:36:08:37, as referenced to 40 CFR § 63.3941(c), the owner or operator must determine the density of each coating used during the compliance period from test results using ASTM Method D1475–98, “Standard Test Method for Density of Liquid Coatings, Inks, and Related Products”, information from the supplier or manufacturer of the material, or specific gravity data for pure chemicals. If there is disagreement between ASTM Method D1475–98 test results and the supplier's or manufacturer's information, the test results will take precedence unless, after consultation the owner or operator demonstrates to the satisfaction of the Secretary that the formulation data are correct.

10.18 Determine the organic hazardous air pollutant content of each coating

In accordance with ARSD 74:36:08:37, as referenced to 40 CFR § 63.3941(d), the owner or operator must calculate the organic hazardous air pollutant content, in kilograms (pounds) of organic hazardous air pollutant emitted per liter (gallon) coating solids used, of each coating used during the compliance period using Equation 10-3.

Equation 10-3 -- Calculating organic hazardous air pollutant content of coating

$$H_c = \frac{D_c W_c}{V_s}$$

Where:

- H_c = Organic hazardous air pollutant content of the coating, in kilograms (pounds) organic hazardous air pollutant emitted per liter (gallon) coating solids used;
- D_c = Density of coating, in kilograms (pounds) coating per liter (gallon) coating, determined according to permit condition 10.17;
- W_c = Mass fraction of organic hazardous air pollutant in the coating, in kilograms (pounds) coating per liter (gallon) coating, determined according to permit condition 10.15; and
- V_s = Volume fraction of coating solids, in liters (gallons) coating solids per liter (gallon) coating, determined according to permit condition 10.16.

10.19 Demonstrating continuous compliance with emission limits

In accordance with ARSD 74:36:08:37, as referenced to 40 CFR § 63.3942, to demonstrate continuous compliance, the owner or operator shall:

1. For each compliance period, use no coating for which the organic hazardous air pollutant content (determined using Equation 10-3) exceeds the applicable emission limit in permit conditions 10.2 and/or 10.3 and use no thinner and/or other additive, or cleaning material that contains organic hazardous air pollutant, determined according to permit condition 10.15. A compliance period consists of 12 months. Each month is the end of a compliance period consisting of that month and the preceding 11 months. If the owner or operator are complying with a facility-specific emission limit under permit condition 10.3, the owner or operator must also perform the calculation using Equation 10-1 on a monthly basis using the data from the previous 12 months of operation;
2. If the owner or operator chooses to comply with the emission limits by using the compliant material option, the use of any coating, thinner and/or other additive, or cleaning material that does not meet the criteria specified in paragraph (1) of this permit condition is a deviation from the emission limits that must be reported as specified in paragraph (9) of permit condition 10.10;
3. As part of each semiannual compliance report, the owner or operator must identify the coating operation(s) for which the owner or operator used the compliant material option. If there were no deviations from the applicable emission limit in permit conditions 10.2 and/or 10.3, submit a statement that the coating operation(s) was (were) in compliance with the emission limits during the reporting period because the owner or operator used no coatings for which the organic hazardous air pollutant content exceeded the applicable emission limit in permit conditions 10.2 and/or 10.3, and the owner or operator used no thinner and/or other additive or cleaning material that contained organic hazardous air pollutant, determined according to permit condition 10.15; and
4. The owner or operator must maintain records as specified in permit conditions 10.13 and 10.14.

E. Compliance with Emission Rate Without Add-On Controls Option

10.20 Determine mass fraction of organic hazardous air pollutant

In accordance with ARSD 74:36:08:37, as referenced to 40 CFR § 63.3951(a), the owner or operator must determine the mass fraction of organic hazardous air pollutant for each coating, thinner and/or other additive, and cleaning material used during each month according to the requirements in permit condition 10.15.

10.21 Determine volume fraction of coating solids

In accordance with ARSD 74:36:08:37, as referenced to 40 CFR § 63.3951(b), the owner or operator must determine the volume fraction of coating solids, liters (gallons) of coating solids per liter (gallon) of coating, for each coating used during each month according to the requirements in permit condition 10.16.

10.22 Determine the density of each material

In accordance with ARSD 74:36:08:37, as referenced to 40 CFR § 63.3951(c), the owner or operator must determine the density of each liquid coating, thinner and/or other additive, and cleaning material used during each month from test results using ASTM Method D1475–98, “Standard Test Method for Density of Liquid Coatings, Inks, and Related Products” (incorporated by reference, see 40 CFR § 63.14), information from the supplier or manufacturer of the material, or reference sources providing density or specific gravity data for pure materials. If powder coatings are included in the compliance determination, determine the density of powder coatings, using ASTM Method D5965–02, “Standard Test Methods for Specific Gravity of Coating Powders” (incorporated by reference, see 40 CFR § 63.14), or information from the supplier. If there is disagreement between ASTM Method D1475–98 or ASTM Method D5965–02 test results and other such information sources, the test results will take precedence unless, after consultation the owner or operator demonstrates to the satisfaction of the Secretary that the formulation data are correct. If the owner or operator purchases materials or monitors consumption by weight instead of volume, the material density does not have to be determined. Instead, use the material weight in place of the combined terms for density and volume in Equations 10-5 through 10-8.

10.23 Determine the volume of each material

In accordance with ARSD 74:36:08:37, as referenced to 40 CFR § 63.3951(d), the owner or operator must determine the volume (liters) of each coating, thinner and/or other additive, and cleaning material used during each month by measurement or usage records. If the owner or operator purchases materials or monitor consumption by weight instead of volume, the volume of each material used does not have to be determined. Instead, use the material weight in place of the combined terms for density and volume in Equations 10-5 through 10-7.

10.24 Determine the mass of organic hazardous air pollutant emissions

In accordance with ARSD 74:36:08:37, as referenced to 40 CFR §§ 63.3951(e), 63.3951(e)(1), 63.3951(e)(2), and 63.3951(e)(3), the owner or operator must calculate the mass of organic hazardous air pollutant emissions using Equation 10-4. The mass of organic hazardous air pollutant emissions is the combined mass of organic hazardous air pollutant contained in all coatings, thinners and/or other additives, and cleaning materials used during each month minus the organic hazardous air pollutant in certain waste materials.

Equation 10-4 – Calculating total mass of organic hazardous air pollutant emissions

$$H_e = A + B + C - R_w$$

Where:

- H_e = Total mass of organic hazardous air pollutant emissions during the month, kilograms;
- A = Total mass of organic hazardous air pollutant in the coatings used during the month, kilograms, as calculated in Equation 10-5;
- B = Total mass of organic hazardous air pollutant in the thinners and/or other additives used during the month, kilograms, as calculated in Equation 10-6;

- C = Total mass of organic hazardous air pollutant in the cleaning materials used during the month, kilograms, as calculated in Equation 10-7; and
- R_w = Total mass of organic hazardous air pollutant in waste materials sent or designated for shipment to a hazardous waste treatment, storage, and disposal facility for treatment or disposal during the month, kilograms, determined according to permit condition 10.25. If the owner or operator chooses not to calculate the total mass of organic hazardous air pollutant in waste materials, the R_w value is zero.

Equation 10-5 – Calculating total mass of organic hazardous air pollutant in the coatings

$$A = \sum_{i=1}^m (Vol_{c,i}) \times (D_{c,i}) \times (W_{c,i})$$

Where:

- A = Total mass of organic hazardous air pollutant in the coatings used during the month, kilograms;
- Vol_{c,i} = Total volume of coating, i, used during the month, liters;
- D_{c,i} = Density of coating, i, kilograms coating per liter coating;
- W_{c,i} = Mass fraction of organic hazardous air pollutant in coating, i, kilograms organic hazardous air pollutant per kilogram coating. For reactive adhesives, use the mass fraction of organic hazardous air pollutant that is emitted as determined using the method in 40 CFR Part 63, Subpart PPPP, Appendix A; and
- m = Number of different coatings used during the month.

Equation 10-6 – Calculating total mass of organic hazardous air pollutant in the thinners

$$B = \sum_{j=1}^n (Vol_{t,j}) \times (D_{t,j}) \times (W_{t,j})$$

Where:

- B = Total mass of organic hazardous air pollutant in the thinners and/or other additives used during the month, kilograms;
- Vol_{t,j} = Total volume of thinner and/or other additive, j, used during the month, liters;
- D_{t,j} = Density of thinner and/or other additive, j, kilograms per liter;
- W_{t,j} = Mass fraction of organic hazardous air pollutant in thinner and/or other additive, j, kilograms organic hazardous air pollutant per kilogram thinner and/or other additive. For reactive adhesives, use the mass fraction of organic hazardous air pollutant that is emitted as determined using the method in 40 CFR Part 63, Subpart PPPP, Appendix A; and
- n = Number of different thinners and/or other additives used during the month.

Equation 10-7 – Calculating total mass of organic hazardous air pollutant in the cleaning materials

$$C = \sum_{k=1}^p (Vol_{s,k}) \times (D_{s,k}) \times (W_{s,k})$$

Where:

- C = Total mass of organic hazardous air pollutant in the cleaning materials used during the month, kilograms;
- Vol_{s,k}= Total volume of cleaning material, k, used during the month, liters;
- D_{s,k}= Density of cleaning material, k, kilograms per liter;
- W_{s,k}= Mass fraction of organic hazardous air pollutant in cleaning material, k, kilograms organic hazardous air pollutant per kilogram material; and
- p = Number of different cleaning materials used during the month.

10.25 Determine the mass of organic HAP emissions in waste materials

In accordance with ARSD 74:36:08:37, as referenced to 40 CFR § 63.3951(e)(4), if the owner or operator chooses to account for the mass of organic hazardous air pollutant contained in waste materials sent or designated for shipment to a hazardous waste treatment, storage, and disposal facility in Equation 10-4, the owner or operator must determine the mass as follows:

1. The owner or operator may only include waste materials in the determination that are generated by coating operations for which the owner or operator uses Equation 10-4 and that will be treated or disposed of by a facility that is regulated as a treatment, storage, and disposal facility under 40 CFR Part 262, 264, 265, or 266. The treatment, storage, and disposal facility may be either off-site or on-site. The owner or operator may not include organic hazardous air pollutant contained in wastewater;
2. The owner or operator must determine either the amount of the waste materials sent to a treatment, storage, and disposal facility during the month or the amount collected and stored during the month and designated for future transport to a treatment, storage, and disposal facility. The owner or operator may not include any waste materials sent to a treatment, storage, and disposal facility during a month if the owner or operator has already included them in the amount collected and stored during that month or a previous month;
3. The owner or operator must determine the total mass of organic hazardous air pollutant contained in the waste materials specified in paragraph (2) of permit condition 10.25; and
4. The owner or operator must document the methodology used to determine the amount of waste materials and the total mass of organic hazardous air pollutant they contain, as required in paragraph (10) of permit condition 10.13. If waste manifests include this information, they may be used as part of the documentation of the amount of waste materials and mass of organic hazardous air pollutant contained in them.

10.26 Determine the total volume of coating solids used

In accordance with ARSD 74:36:08:37, as referenced to 40 CFR § 63.3951(f), the owner or operator must determine the total volume of coating solids used, liters, which is the combined volume of coating solids for all the coatings used during each month, using Equation 10-8.

Equation 10-8 – Calculating total volume of coating solids used

$$V_{st} = \sum_{i=1}^m (Vol_{c,i}) x (V_{c,i})$$

Where:

- V_{st} = Total volume of coating solids used during the month, liters;
- $Vol_{c,i}$ = Total volume of coating, i, used during the month, liters;
- $V_{s,i}$ = Volume fraction of coating solids for coating, i, liter solids per liter coating, determined according to permit condition 10.16; and
- m = Number of coatings used during the month.

10.27 Determine the organic hazardous air pollutant emission rate

In accordance with ARSD 74:36:08:37, as referenced to 40 CFR § 63.3951(g), the owner or operator must calculate the organic hazardous air pollutant emission rate for the compliance period, kilograms (pounds) organic hazardous air pollutant emitted per liter (gallon) coating solids used, using Equation 10-9.

Equation 10-9 – Calculating average organic hazardous air pollutant emission rate

$$H_{yr} = \frac{\sum_{y=1}^n H_e}{\sum_{y=1}^n V_{st}}$$

Where:

- H_{yr} = Average organic hazardous air pollutant emission rate for the compliance period, kilograms organic hazardous air pollutant emitted per liter coating solids used;
- H_e = Total mass of organic hazardous air pollutant emissions from all materials used during month, y, kilograms, as calculated by Equation 10-4;
- V_{st} = Total volume of coating solids used during month, y, liters, as calculated by Equation 10-8;
- y = Identifier for months; and
- n = Number of months in the compliance period, n equals 12.

10.28 Demonstrating continuous compliance with emission limitations

In accordance with ARSD 74:36:08:37, as referenced to 40 CFR § 63.3952, the owner or operator shall demonstrate continuous compliance as follows:

1. The organic hazardous air pollutant emission rate for each compliance period, determined according to permit conditions 10.20 through 10.27, must be less than or equal to the applicable emission limit in permit conditions 10.2 and/or 10.3. A compliance period consists of 12 months. Each month is the end of a compliance period consisting of that month and the preceding 11 months. The owner or operator must perform the calculations in permit conditions 10.20 through 10.27 on a monthly basis using data from the previous 12 months of operation. If the owner or operator are complying with a facility-specific emission limit under permit condition 10.3, the owner or operator must also perform the

calculation using Equation 10-1 on a monthly basis using the data from the previous 12 months of operation;

2. If the organic hazardous air pollutant emission rate for any 12-month compliance period exceeded the applicable emission limit in permit conditions 10.2 and/or 10.3, this is a deviation from the emission limitation for that compliance period and must be reported as specified in paragraph (10) of permit condition 10.10;
3. As part of each semiannual compliance report required by permit condition 10.10, the owner or operator must identify the coating operation(s) for which the owner or operator used the emission rate without add-on controls option. If there were no deviations from the emission limitations, the owner or operator must submit a statement that the coating operation(s) was (were) in compliance with the emission limitations during the reporting period because the organic hazardous air pollutant emission rate for each compliance period was less than or equal to the applicable emission limit in permit conditions 10.2 and/or 10.3, determined according to permit conditions 10.20 through 10.27 and
4. The owner or operator must maintain records as specified in permit conditions 10.13 and 10.14.

F. Continuous Compliance With Add-On Controls Option

10.29 Demonstrating compliance with emission limitations

In accordance with ARSD 74:36:08:37 as referenced to 40 CFR § 63.3961(a), the owner or operator may use the emission rate with add-on controls option for any coating operation, for any group of coating operations, or for all of the coating operations. The owner or operator may include both controlled and uncontrolled coating operations in a group for which this option is used. The owner or operator must conduct a separate compliance demonstration for each general use, magnet wire, rubber-to-metal, and extreme performance fluoropolymer coating operation, unless the owner or operator is demonstrating compliance with a predominant activity or facility-specific emission limit as provided in permit condition 10.3. If the owner or operator is demonstrating compliance with a predominant activity or facility-specific emission limit, the owner or operator must demonstrate that all coating operations included in the predominant activity determination or calculation of the facility-specific emission limit comply with that limit. When calculating the organic hazardous air pollutant emission rate, do not include any coatings, thinners and/or other additives, or cleaning materials used on coating operations for which the compliant material option is used or the emission rate without add-on controls option is used. The owner or operator does not need to re-determine the mass of organic hazardous air pollutant in coatings, thinners and/or other additives, or cleaning materials that have been reclaimed onsite (or reclaimed off-site if there is documentation showing that the owner or operator received back the exact same materials that were sent off-site) and reused in the coatings operation(s) for which the emission rate with add-on controls option is used. If the owner or operator uses coatings, thinners and/or other additives, or cleaning materials that have been reclaimed on-site, the amount of each used in a month may be reduced by the amount of each that is reclaimed. That is, the amount used may be calculated as the amount consumed to account for materials that are reclaimed.

10.30 Compliance with operating limits

In accordance with ARSD 74:36:08:37, as referenced to 40 CFR § 63.3961(b), except for solvent recovery systems for which liquid-liquid material balances are conducted according to the requirements in permit condition 10.36, the owner or operator must establish and demonstrate continuous compliance with the operating limits required by permit condition 10.5, using the procedures specified in permit conditions 10.44 through 10.51.

10.31 Compliance with work practice requirements

In accordance with ARSD 74:36:08:37, as referenced to 40 CFR § 63.3961(c), the owner or operator must develop, implement, and document implementation of the work practice plan required by permit condition 10.6 as specified in permit condition 10.13.

10.32 Determine the mass fraction of organic hazardous air pollutant

In accordance with ARSD 74:36:08:37, as referenced to 40 CFR § 63.3961(e), the owner or operator must follow the procedures specified in permit conditions 10.20 through 10.23 to determine the mass fraction of organic hazardous air pollutant, density, and volume of each coating, thinner and/or other additive, and cleaning material used during each month; and the volume fraction of coating solids for each coating used during each month.

10.33 Determine the total mass of organic hazardous air pollutants

In accordance with ARSD 74:36:08:37, as referenced to 40 CFR § 63.3961(f), the owner or operator must use Equation 10-4, to calculate the total mass of organic hazardous air pollutant emissions before add-on controls from all coatings, thinners and/or other additives, and cleaning materials used during each month in the coating operation or group of coating operations for which the emission rate with add-on controls option is used.

10.34 Determine the organic hazardous air pollutant emission reduction

In accordance with ARSD 74:36:08:37, as referenced to 40 CFR § 63.3961(g), the owner or operator must determine the mass of organic hazardous air pollutant emissions reduced for each controlled coating operation during each month. The emission reduction determination quantifies the total organic hazardous air pollutant emissions that pass through the emission capture system and are destroyed or removed by the add-on control device. Use the procedures in permit condition 10.35 to calculate the mass of organic hazardous air pollutant emission reduction for each controlled coating operation using an emission capture system and add-on control device other than a solvent recovery system for conducting liquid-liquid material balances. For each controlled coating operation using a solvent recovery system for which the owner or operator conducts a liquid-liquid material balance, use the procedures in permit condition 10.36 to calculate the organic hazardous air pollutant emission reduction.

10.35 Determine emission reduction not using liquid-liquid material balance

In accordance with ARSD 74:36:08:37, as referenced to 40 CFR § 63.3961(h), the owner or operator must use Equation 10-10 to calculate the organic hazardous air pollutant emission reduction for each controlled coating operation using an emission capture system and add-on control device other than a solvent recovery system for which liquid-liquid material balances are conducted. The calculation applies the emission capture system efficiency and add-on control

device efficiency to the mass of organic hazardous air pollutant contained in the coatings, thinners and/or other additives, and cleaning materials that are used in the coating operation served by the emission capture system and add-on control device during each month. The owner or operator must assume zero efficiency for the emission capture system and add-on control device for any period of time a deviation specified in permit condition 10.40 occurs in the controlled coating operation, including a deviation during a period of startup, shutdown, or malfunction, unless the owner or operator has other data indicating the actual efficiency of the emission capture system and add-on control device and the use of these data is approved by the Secretary. Equation 10-10 treats the materials used during such a deviation as if they were used on an uncontrolled coating operation for the time period of the deviation.

Equation 10-10 – Calculating mass of organic hazardous air pollutant emission reduction

$$H_c = (A_c + B_c + C_c - R_w - H_{unc}) \times \left(\frac{CE}{100} \times \frac{DRE}{100} \right)$$

Where:

- H_c = Mass of organic hazardous air pollutant emission reduction for the controlled coating operation during the month, kilograms;
- A_c = Total mass of organic hazardous air pollutant in the coatings used in the controlled coating operation during the month, kilograms, as calculated in Equation 10-11;
- B_c = Total mass of organic hazardous air pollutant in the thinners and/or other additives used in the controlled coating operation during the month, kilograms, as calculated in Equation 10-12;
- C_c = Total mass of organic hazardous air pollutant in the cleaning materials used in the controlled coating operation during the month, kilograms, as calculated in Equation 10-13;
- R_w = Total mass of organic hazardous air pollutant in waste materials sent or designated for shipment to a hazardous waste treatment, storage, and disposal facility for treatment or disposal during the compliance period, kilograms, determined according to permit condition 10.25. A value of zero may be assigned to R_w if this allowance is not used;
- H_{unc} = Total mass of organic hazardous air pollutant in the coatings, thinners and/or other additives, and cleaning materials used during all deviations specified in paragraph (3) and (4) of permit condition 10.40 that occurred during the month in the controlled coating operation, kilograms, as calculated in Equation 10-14;
- CE = Capture efficiency of the emission capture system vented to the add-on control device, percent. Use the test methods and procedures specified in permit condition 10.41 and 10.42 to measure and record capture efficiency; and
- DRE = Organic hazardous air pollutant destruction or removal efficiency of the add-on control device, percent. Use the test methods and procedures in permit conditions 10.41 and 10.43 to measure and record the organic hazardous air pollutant destruction or removal efficiency.

Equation 10-11 – Calculating mass of organic hazardous air pollutant emission in the coatings

$$A_c = \sum_{i=1}^m (Vol_{c,i}) \times (D_{c,i}) \times (W_{c,i})$$

Where:

- A_c = Total mass of organic hazardous air pollutant in the coatings used in the controlled coating operation during the month, kilograms;
- $Vol_{c,i}$ = Total volume of coating, i, used during the month, liters;
- $D_{c,i}$ = Density of coating, i, kilograms per liter;
- $W_{c,i}$ = Mass fraction of organic hazardous air pollutant in coating, i, kilograms per kilogram. For reactive adhesives, use the mass fraction of organic hazardous air pollutant that is emitted as determined using the method in 40 CFR Part 63, Subpart PPPP, Appendix A. *Reactive adhesive* means adhesive systems composed, in part, of volatile monomers that react during the adhesive curing reaction, and, as a result, do not evolve from the film during use. These volatile components instead become integral parts of the adhesive through chemical reaction. At least 70 percent of the liquid components of the system, excluding water, react during the process; and
- m = Number of different coatings used.

Equation 10-12 – Calculating mass of organic hazardous air pollutant in the thinners

$$B_c = \sum_{j=1}^n (Vol_{t,j}) \times (D_{t,j}) \times (W_{t,j})$$

Where:

- B_c = Total mass of organic hazardous air pollutant in the thinners and/or other additives used in the controlled coating operation during the month, kilograms;
- $Vol_{t,j}$ = Total volume of thinner and/or other additive, j, used during the month, liters;
- $D_{t,j}$ = Density of thinner and/or other additive, j, kilograms per liter;
- $W_{t,j}$ = Mass fraction of organic hazardous air pollutant in thinner and/or other additive, j, kilograms per kilogram. For reactive adhesives, use the mass fraction of organic hazardous air pollutant that is emitted as determined using the method in 40 CFR Part 63, Subpart PPPP, Appendix A. *Reactive adhesive* means adhesive systems composed, in part, of volatile monomers that react during the adhesive curing reaction, and, as a result, do not evolve from the film during use. These volatile components instead become integral parts of the adhesive through chemical reaction. At least 70 percent of the liquid components of the system, excluding water, react during the process; and
- n = Number of different thinners and/or other additives used.

Equation 10-13 – Calculating mass of organic hazardous air pollutant emission in the cleaning materials

$$C_c = \sum_{k=1}^p (Vol_{s,k})x(D_{s,k})x(W_{s,k})$$

Where:

- C_c = Total mass of organic hazardous air pollutant in the cleaning materials used in the controlled coating operation during the month, kilograms;
- $Vol_{s,k}$ = Total volume of cleaning material, k, used during the month, liters;
- $D_{s,k}$ = Density of cleaning material, k, kilograms per liter;
- $W_{s,k}$ = Mass fraction of organic hazardous air pollutant in cleaning material, k, kilograms per kilogram; and
- p = Number of different cleaning materials used.

Equation 10-14 – Calculating mass of organic hazardous air pollutant emission during deviations

$$H_{unc} = \sum_{h=1}^q (Vol_h)x(D_h)x(W_h)$$

Where:

- H_{unc} = Total mass of organic hazardous air pollutant in the coatings, thinners and/or other additives, and cleaning materials used during all deviations specified in paragraph (3) and (4) of permit condition 10.40 that occurred during the month in the controlled coating operation, kilograms;
- Vol_h = Total volume of coating, thinner and/or other additive, or cleaning material, h, used in the controlled coating operation during deviations, liters;
- D_h = Density of coating, thinner and/or other additives, or cleaning material, h, kilograms per liter;
- W_h = Mass fraction of organic hazardous air pollutant in coating, thinner and/or other additives, or cleaning material, h, kilograms organic hazardous air pollutant per kilogram coating. For reactive adhesives, use the mass fraction of organic hazardous air pollutant that is emitted as determined using the method in 40 CFR Part 63, Subpart PPPP, Appendix A. *Reactive adhesive* means adhesive systems composed, in part, of volatile monomers that react during the adhesive curing reaction, and, as a result, do not evolve from the film during use. These volatile components instead become integral parts of the adhesive through chemical reaction. At least 70 percent of the liquid components of the system, excluding water, react during the process; and
- q = Number of different coatings, thinners and/or other additives, and cleaning materials used.

10.36 Demonstrating compliance for solvent recovery system

In accordance with ARSD 74:36:08:37, as referenced to 40 CFR § 63.3961(j), for each controlled coating operation using a solvent recovery system for which the owner or operator conducts liquid-liquid material balances, the owner or operator must calculate the organic hazardous air pollutant emission reduction by applying the volatile organic matter collection and

recovery efficiency to the mass of organic hazardous air pollutant contained in the coatings, thinners and/or other additives, and cleaning materials that are used in the coating operation controlled by the solvent recovery system during each month. The owner or operator must perform a liquid-liquid material balance for each month as specified in paragraph (1) through (6) of permit condition 10.36. The owner or operator must calculate the mass of organic hazardous air pollutant emission reduction by the solvent recovery system as specified in paragraph (7) of permit condition 10.36.

1. For each solvent recovery system, install, calibrate, maintain, and operate according to the manufacturer's specifications, a device that indicates the cumulative amount of volatile organic matter recovered by the solvent recovery system each month. The device must be initially certified by the manufacturer to be accurate to within ± 2.0 percent of the mass of volatile organic matter recovered.
2. For each solvent recovery system, determine the mass of volatile organic matter recovered for the month, based on measurement with the device required in paragraph (1) of permit condition 10.36.
3. Determine the mass fraction of volatile organic matter for each coating, thinner and/or other additive, and cleaning material used in the coating operation controlled by the solvent recovery system during the month, kilograms volatile organic matter per kilogram coating. The owner or operator may determine the volatile organic matter mass fraction using 40 CFR Part 60, Appendix A, Method 24 or an EPA approved alternative method, or the owner or operator may use information provided by the manufacturer or supplier of the coating. In the event of any inconsistency between information provided by the manufacturer or supplier and the results of 40 CFR Part 60, Appendix A, Method 24 or an approved alternative method, the test method results will take precedence unless, after consultation the owner or operator demonstrate to the satisfaction of the enforcement agency that the formulation data are correct.
4. Determine the density of each coating, thinner and/or other additive, and cleaning material used in the coating operation controlled by the solvent recovery system during the month, kilograms per liter, according to permit condition 10.22.
5. Measure the volume of each coating, thinner and/or other additive, and cleaning material used in the coating operation controlled by the solvent recovery system during the month, liters.
6. Each month, calculate the solvent recovery system's volatile organic matter collection and recovery efficiency, using Equation 10-15.

Equation 10-15 – Calculating solvent recovery collection and recovery efficiency

$$R_v = (100) \times \left(\frac{M_{vr}}{\sum_{i=1}^m (Vol_i) \times (D_i) \times (WV_{c,i}) + \sum_{j=1}^n (Vol_j) \times (D_j) \times (WV_{t,j}) + \sum_{k=1}^p (Vol_k) \times (D_k) \times (WV_{s,k})} \right)$$

Where:

- R_v = Volatile organic matter collection and recovery efficiency of the solvent recovery system during the month, percent.

- M_{vr} = Mass of volatile organic matter recovered by the solvent recovery system during the month, kg.
 - Vol_i = Volume of coating, i, used in the coating operation controlled by the solvent recovery system during the month, liters.
 - D_i = Density of coating, i, kilograms per liter.
 - $WV_{c,i}$ = Mass fraction of volatile organic matter for coating, i, kilograms volatile organic matter per kilogram coating. For reactive adhesives, use the mass fraction of organic hazardous air pollutant that is emitted as determined using the method in 40 CFR Part 63, Subpart PPPP, Appendix A.
 - Vol_j = Volume of thinner and/or other additive, j, used in the coating operation controlled by the solvent recovery system during the month, liters.
 - D_j = Density of thinner and/or other additive, j, kilograms per liter.
 - $WV_{t,j}$ = Mass fraction of volatile organic matter for thinner and/or other additive, j, kilograms volatile organic matter per kilogram thinner and/or other additive. For reactive adhesives, use the mass fraction of organic hazardous air pollutant that is emitted as determined using the method in 40 CFR Part 63, Subpart PPPP, Appendix A.
 - Vol_k = Volume of cleaning material, k, used in the coating operation controlled by the solvent recovery system during the month, liters.
 - D_k = Density of cleaning material, k, kilograms per liter.
 - $WV_{s,k}$ = Mass fraction of volatile organic matter for cleaning material, k, kilograms volatile organic matter per kilogram cleaning material.
 - m = Number of different coatings used in the coating operation controlled by the solvent recovery system during the month.
 - n = Number of different thinners and/or other additives used in the coating operation controlled by the solvent recovery system during the month.
 - p = Number of different cleaning materials used in the coating operation controlled by the solvent recovery system during the month.
7. Calculate the mass of organic hazardous air pollutant emission reduction for the coating operation controlled by the solvent recovery system during the month, using Equation 10-16.

Equation 10-16 – Calculating mass of organic hazardous air pollutant emission reduction

$$H_{csr} = (A_{csr} + B_{csr} + C_{csr}) \times \left(\frac{R_v}{100} \right)$$

Where:

- H_{csr} = Mass of organic hazardous air pollutant emission reduction for the coating operation controlled by the solvent recovery system using a liquid-liquid material balance during the month, kg.
- A_{csr} = Total mass of organic hazardous air pollutant in the coatings used in the coating operation controlled by the solvent recovery system, kg, calculated using Equation 10-17.

- B_{csr} = Total mass of organic hazardous air pollutant in the thinners and/or other additives used in the coating operation controlled by the solvent recovery system, kg, calculated using Equation 10-18.
- C_{csr} = Total mass of organic hazardous air pollutant in the cleaning materials used in the coating operation controlled by the solvent recovery system, kg, calculated using Equation 10-19.
- R_v = Volatile organic matter collection and recovery efficiency of the solvent recovery system, percent, from Equation 10-15.

Equation 10-17 – Calculating mass of organic hazardous air pollutant in the coatings

$$A_{csr} = \sum_{i=1}^m (Vol_{c,i})x(D_{c,i})x(W_{c,i})$$

Where:

- A_{csr} = Total mass of organic hazardous air pollutant in the coatings used in the coating operation controlled by the solvent recovery system during the month, kg.
- $Vol_{c,i}$ = Total volume of coating, i, used during the month in the coating operation controlled by the solvent recovery system, liters.
- $D_{c,i}$ = Density of coating, i, kilograms per liter.
- $W_{c,i}$ = Mass fraction of organic hazardous air pollutant in coating, i, kilograms organic hazardous air pollutant per kilogram coating. For reactive adhesives, use the mass fraction of organic hazardous air pollutant that is emitted as determined using the method in 40 CFR Part 63, Subpart PPPP, Appendix A. *Reactive adhesive* means adhesive systems composed, in part, of volatile monomers that react during the adhesive curing reaction, and, as a result, do not evolve from the film during use. These volatile components instead become integral parts of the adhesive through chemical reaction. At least 70 percent of the liquid components of the system, excluding water, react during the process.
- m = Number of different coatings used.

Equation 10-18 – Calculating mass of organic hazardous air pollutant in the thinners

$$B_{csr} = \sum_{j=1}^n (Vol_{t,j})x(D_{t,j})x(W_{t,j})$$

Where:

- B_{csr} = Total mass of organic hazardous air pollutant in the thinners and/or other additives used in the coating operation controlled by the solvent recovery system during the month, kg.
- $Vol_{t,j}$ = Total volume of thinner and/or other additive, j, used during the month in the coating operation controlled by the solvent recovery system, liters.
- $D_{t,j}$ = Density of thinner and/or other additive, j, kilograms per liter.

- $W_{i,j}$ = Mass fraction of organic hazardous air pollutant in thinner and/or other additive, j, kilograms (pounds) organic hazardous air pollutant per kilogram (pound) thinner and/or other additive. For reactive adhesives, use the mass fraction of organic hazardous air pollutant that is emitted as determined using the method in 40 CFR Part 63, Subpart PPPP, Appendix A.
- n = Number of different thinners and/or other additives used.

Equation 10-19 – Calculating mass of organic hazardous air pollutant in the cleaning materials

$$C_{csr} = \sum_{k=1}^p (Vol_{s,k}) \times (D_{s,k}) \times (W_{s,k})$$

Where:

- C_{csr} = Total mass of organic hazardous air pollutant in the cleaning materials used in the coating operation controlled by the solvent recovery system during the month, kg.
- $Vol_{s,k}$ = Total volume of cleaning material, k, used during the month in the coating operation controlled by the solvent recovery system, liters.
- $D_{s,k}$ = Density of cleaning material, k, kilograms per liter.
- $W_{s,k}$ = Mass fraction of organic hazardous air pollutant in cleaning material, k, kilograms organic hazardous air pollutant per kilogram cleaning material.
- p = Number of different cleaning materials used.

10.37 Determine the total volume of coating solids used

In accordance with ARSD 74:36:08:37, as referenced to 40 CFR § 63.3961(k), the owner or operator must determine the total volume of coating solids used, liters, which is the combined volume of coating solids for all the coatings used during each month in the coating operation or group of coating operations for which the owner or operator use the emission rate with add-on controls option, using Equation 10-8.

10.38 Determine the mass of organic HAP emissions for each month

In accordance with ARSD 74:36:08:37, as referenced to 40 CFR § 63.3961(l), the owner or operator must determine the mass of organic hazardous air pollutant emissions, kilograms, during each month, using Equation 10-20:

Equation 10-20 – Calculating mass of organic hazardous air pollutant for each month

$$H_{hap} = H_e - \sum_{i=1}^q (H_{c,i}) - \sum_{j=1}^r (H_{csr,j})$$

Where:

- H_{hap} = Total mass of organic hazardous air pollutant emissions for the month, kilograms;
- H_e = Total mass of organic hazardous air pollutant emissions before add-on controls from all the coatings, thinners and/or other additives, and cleaning materials used during the month, kilograms, determined according to permit condition 10.33;

- $H_{c,i}$ = Total mass of organic hazardous air pollutant emission reduction for controlled coating operation, i, not using a liquid-liquid material balance, during the month, kilograms, from Equation 10-10;
- $H_{csr,j}$ = Total mass of organic hazardous air pollutant emission reduction for coating operation, j, controlled by a solvent recovery system using a liquid-liquid material balance, during the month, kilograms, from Equation 10-16;
- q = Number of controlled coating operations not controlled by a solvent recovery system using a liquid-liquid material balance; and
- r = Number of coating operations controlled by a solvent recovery system using a liquid-liquid material balance.

10.39 Determine the organic HAP rate for the compliance period

In accordance with ARSD 74:36:08:37, as referenced to 40 CFR § 63.3961(m), the owner or operator must determine the organic hazardous air pollutant emission rate for the compliance period, kilograms (pounds) of organic hazardous air pollutant emitted per liter (gallon) coating solids used, using Equation 10-21.

Equation 10-21 – Calculating mass of organic hazardous air pollutant for each month

$$H_{annual} = \frac{\sum_{y=1}^n (H_{hap,y})}{\sum_{y=1}^n (H_{st,y})}$$

Where:

- H_{annual} = Organic hazardous air pollutant emission rate for the compliance period, kilograms organic hazardous air pollutant emitted per liter coating solids used;
- $H_{hap,y}$ = Organic hazardous air pollutant emissions for month, y, kilograms, determined according to Equation 10-20;
- $V_{st,y}$ = Total volume of coating solids used during month, y, liters, from Equation 10-15;
- y = Identifier for months; and
- n = Number of full months in the compliance period, n equals 12.

10.40 Demonstrating continuous compliance with emission limits

In accordance with ARSD 74:36:08:37, as referenced to 40 CFR § 63.3963, to demonstrate continuous compliance the owner or operator shall:

1. For each compliance period, the organic hazardous air pollutant emission rate, determined according to the procedures in permit conditions 10.30 through 10.39 must be equal to or less than the applicable emission limit in permit conditions 10.2 and/or 10.3. A compliance period consists of 12 months. Each month is the end of a compliance period consisting of that month and the preceding 11 months. The owner or operator must perform the calculations in permit conditions 10.30 through 10.39 on a monthly basis using data from the previous 12 months of operation. If the owner or operator are complying with a facility-specific emission limit under permit condition 10.3, the owner or operator must also perform the calculation using Equation 10-1 on a monthly basis using the data from the previous 12 months of operation;

2. If the organic hazardous air pollutant emission rate for any 12-month compliance period exceeded the applicable emission limit in permit conditions 10.2 and/or 10.3, this is a deviation from the emission limitation for that compliance period that must be reported as specified in paragraph (11) of permit condition 10.10;
3. The owner or operator must demonstrate continuous compliance with each operating limit required by permit condition 10.5 that applies to the owner or operator, as specified in Table 10-1, when the coating line is in operation:
 - a. If an operating parameter is out of the allowed range specified in Table 10-1, this is a deviation from the operating limit that must be reported as specified in paragraph (11) of permit condition 10.10; and
 - b. If an operating parameter deviates from the operating limit specified in Table 10-1, then the owner or operator must assume that the emission capture system and add-on control device were achieving zero efficiency during the time period of the deviation, unless the owner or operator have other data indicating the actual efficiency of the emission capture system and add-on control device and the use of these data is approved by the Secretary;
4. The owner or operator must meet the requirements for bypass lines in permit condition 10.46 for controlled coating operations for which the owner or operator do not conduct liquid-liquid material balances. If any bypass line is opened and emissions are diverted to the atmosphere when the coating operation is running, this is a deviation that must be reported as specified in paragraph (11) of permit condition 10.9. For the purposes of completing the compliance calculations specified in permit condition 10.35, the owner or operator must treat the materials used during a deviation on a controlled coating operation as if they were used on an uncontrolled coating operation for the time period of the deviation as indicated in Equation 10-10;
5. The owner or operator must demonstrate continuous compliance with the work practice standards in permit condition 10.6. If the owner or operator did not develop a work practice plan, or the owner or operator did not implement the plan, or the owner or operator did not keep the records required by permit condition 10.13(10)(h), this is a deviation from the work practice standards that must be reported as specified in paragraph (11) of permit condition 10.10;
6. As part of each semiannual compliance report required in permit conditions 10.10, the owner or operator must identify the coating operation(s) for which the owner or operator used the emission rate with add-on controls option. If there were no deviations from the emission limitations, submit a statement that the owner or operator were in compliance with the emission limitations during the reporting period because the organic hazardous air pollutant emission rate for each compliance period was less than or equal to the applicable emission limit in permit conditions 10.2 and/or 10.3, and the owner or operator achieved the operating limits required by permit condition 10.5 and the work practice standards required by permit condition 10.6 during each compliance period; and
7. The owner or operator must maintain records as specified in permit conditions 10.13 and 10.14.

10.41 General requirements for performance tests

In accordance with ARSD 74:36:08:37, as referenced to 40 CFR § 63.3964, the owner or operator must conduct each performance test required in this chapter according to the requirements in 40 CFR § 63.7(e)(1) and under the following conditions unless the owner or operator obtains a waiver of the performance test according to the provisions in 40 CFR § 63.7(h).

1. The owner or operator must conduct the performance test under representative operating conditions for the coating operation. Operations during periods of startup, shutdown, or malfunction and during periods of nonoperation do not constitute representative conditions. The owner or operator must record the process information that is necessary to document operating conditions during the test and explain why the conditions represent normal operation; and
2. The owner or operator must conduct the performance test when the emission capture system and add-on control device are operating at a representative flow rate and the add-on control device is operating at a representative inlet concentration. The owner or operator must record information that is necessary to document emission capture system and add-on control device operating conditions during the test and explain why the conditions represent normal operation.

The owner or operator must conduct each performance test of an emission capture system according to the requirements in permit condition 10.42. The owner or operator must conduct each performance test of an add-on control device according to the requirements in permit condition 10.43.

10.42 Determining emissions capture system efficiency

In accordance with ARSD 74:36:08:37, as referenced to 40 CFR § 63.3965, the owner or operator must use the following procedures and test methods to determine capture efficiency:

1. The owner or operator may assume the capture system efficiency is 100 percent if both of the following two requirements are met:
 - a. The capture system meets the criteria in 40 CFR Part 51, Appendix M, Method 204 for a permanent total enclosure and directs all the exhaust gases from the enclosure to an add-on control device; and
 - b. All coatings, thinners and/or other additives, and cleaning materials used in the coating operation are applied within the capture system; coating solvent flash-off, curing, and drying occurs within the capture system; and the removal or evaporation of cleaning materials from the surfaces they are applied to occurs within the capture system. For example, this criterion is not met if parts enter the open shop environment when being moved between a spray booth and a curing oven;
2. If the capture system does not meet both of the criteria in permit condition 10.42(1)(a) and (1)(b), then the owner or operator must use one of the three protocols described in paragraph (3), (4), and (5) of permit condition 10.42 to measure capture efficiency. The capture efficiency measurements use total volatile hydrocarbon capture efficiency as a surrogate for organic hazardous air pollutant capture efficiency. For the protocols in

paragraph (3) and (4) of permit condition 10.42, the capture efficiency measurement must consist of three test runs. Each test run must be at least 3 hours duration or the length of a production run, whichever is longer, up to 8 hours. For the purposes of this test, a production run means the time required for a single part to go from the beginning to the end of the production, which includes surface preparation activities and drying and curing time;

3. The liquid-to-uncaptured-gas protocol compares the mass of liquid total volatile hydrocarbon in materials used in the coating operation to the mass of total volatile hydrocarbon emissions not captured by the emission capture system. Use a temporary total enclosure or a building enclosure and the following procedures to measure emission capture system efficiency using the liquid-to-uncaptured-gas protocol:
 - a. Either use a building enclosure or construct an enclosure around the coating operation where coatings, thinners and/or other additives, and cleaning materials are applied, and all areas where emissions from these applied coatings and materials subsequently occur, such as flash-off, curing, and drying areas. The areas of the coating operation where capture devices collect emissions for routing to an add-on control device, such as the entrance and exit areas of an oven or spray booth, must also be inside the enclosure. The enclosure must meet the applicable definition of a temporary total enclosure or building enclosure in 40 CFR Part 51, Appendix M, Method 204;
 - b. Use 40 CFR Part 51, Appendix M, Method 204A or 204F to determine the mass fraction of total volatile hydrocarbon liquid input from each coating, thinner and/or other additive, and cleaning material used in the coating operation during each capture efficiency test run. To make the determination, substitute total volatile hydrocarbon for each occurrence of the term volatile organic compound (VOC) in the methods;
 - c. Use Equation 10-22 to calculate the total mass of total volatile hydrocarbon liquid input from all the coatings, thinners and/or other additives, and cleaning materials used in the coating operation during each capture efficiency test run.

Equation 10-22 – Calculating total mass of total volatile hydrocarbon from coatings

$$TVH_{used} = \sum_{i=1}^n (TVH_i) \times (Vol_i) \times (D_i)$$

Where:

- TVH_{used} = Mass of liquid total volatile hydrocarbon in materials used in the coating operation during the capture efficiency test run, kilograms;
- TVH_i = Mass fraction of total volatile hydrocarbon in coating, thinner and/or other additive, or cleaning material, i, that is used in the coating operation during the capture efficiency test run, kilograms total volatile hydrocarbon per kilogram material;
- Vol_i = Total volume of coating, thinner and/or other additive, or cleaning material, i, used in the coating operation during the capture efficiency test run, liters;
- D_i = Density of coating, thinner and/or other additive, or cleaning material, i, kilograms material per liter material; and

- n = Number of different coatings, thinners and/or other additives, and cleaning materials used in the coating operation during the capture efficiency test run;
- d. Use 40 CFR Part 51, Appendix M, Method 204D or 204E to measure the total mass, kilograms, of total volatile hydrocarbon emissions that are not captured by the emission capture system. They are measured as they exit the temporary total enclosure or building enclosure during each capture efficiency test run. To make the measurement, substitute total volatile hydrocarbon for each occurrence of the term volatile organic compound (VOC) in the methods:
 - i. Use 40 CFR Part 51, Appendix M, Method 204D if the enclosure is a temporary total enclosure; and
 - ii. Use 40 CFR Part 51, Appendix M, Method 204E if the enclosure is a building enclosure. During the capture efficiency measurement, all organic compound emitting operations inside the building enclosure, other than the coating operation for which capture efficiency is being determined, must be shut down, but all fans and blowers must be operating normally;
 - e. For each capture efficiency test run, determine the percent capture efficiency of the emission capture system using Equation 10-23:

Equation 10-23 – Calculating percent capture efficiency

$$CE = \frac{(TVH_{used} - TVH_{uncaptured})}{(TVH_{used})} \times 100$$

Where:

- CE = Capture efficiency of the emission capture system vented to the add-on control device, percent;
 - TVH_{used} = Total mass of total volatile hydrocarbon liquid input used in the coating operation during the capture efficiency test run, kilograms; and
 - $TVH_{uncaptured}$ = Total mass of total volatile hydrocarbon that is not captured by the emission capture system and that exits from the temporary total enclosure or building enclosure during the capture efficiency test run, kilograms.
- f. Determine the capture efficiency of the emission capture system as the average of the capture efficiencies measured in the three test runs;
 4. The gas-to-gas protocol compares the mass of total volatile hydrocarbon emissions captured by the emission capture system to the mass of total volatile hydrocarbon emissions not captured. Use a temporary total enclosure or a building enclosure and the procedures in permit conditions 10.42(4)(a) through 10.42(4)(e) to measure emission capture system efficiency using the gas-to-gas protocol:
 - a. Either use a building enclosure or construct an enclosure around the coating operation where coatings, thinners and/or other additives, and cleaning materials are applied, and all areas where emissions from these applied coatings and materials subsequently occur, such as flash-off, curing, and drying areas. The areas of the coating operation where capture devices collect emissions generated by the coating operation for

- routing to an add-on control device, such as the entrance and exit areas of an oven or a spray booth, must also be inside the enclosure. The enclosure must meet the applicable definition of a temporary total enclosure or building enclosure in 40 CFR Part 51, Appendix M, Method 204;
- b. Use 40 CFR Part 51, Appendix M, Method 204B or 204C to measure the total mass, kilograms, of total volatile hydrocarbon emissions captured by the emission capture system during each capture efficiency test run as measured at the inlet to the add-on control device. To make the measurement, substitute total volatile hydrocarbon for each occurrence of the term volatile organic compound (VOC) in the methods:
 - i. The sampling points for the Method 204B or 204C measurement must be upstream from the add-on control device and must represent total emissions routed from the capture system and entering the add-on control device; and
 - ii. If multiple emission streams from the capture system enter the add-on control device without a single common duct, then the emissions entering the add-on control device must be simultaneously measured in each duct and the total emissions entering the add-on control device must be determined;
 - c. Use 40 CFR part 51, Appendix M, Method 204D or 204E to measure the total mass, kilograms, of total volatile hydrocarbon emissions that are not captured by the emission capture system; they are measured as they exit the temporary total enclosure or building enclosure during each capture efficiency test run. To make the measurement, substitute total volatile hydrocarbon for each occurrence of the term volatile organic compound (VOC) in the methods:
 - i. Use 40 CFR Part 51, Appendix M, Method 204D if the enclosure is a temporary total enclosure; and
 - ii. Use 40 CFR Part 51, Appendix M, Method 204E if the enclosure is a building enclosure. During the capture efficiency measurement, all organic compound emitting operations inside the building enclosure, other than the coating operation for which capture efficiency is being determined, must be shut down, but all fans and blowers must be operating normally;
 - d. For each capture efficiency test run, determine the percent capture efficiency of the emission capture system using Equation 10-24.

Equation 10-24 – Calculating percent capture efficiency:

$$CE = \frac{(TVH_{captured})}{(TVH_{captured} + TVH_{uncaptured})} \times 100$$

Where:

- CE = Capture efficiency of the emission capture system vented to the add-on control device, percent;
- $TVH_{captured}$ = Total mass of total volatile hydrocarbon captured by the emission capture system as measured at the inlet to the add-on control device during the emission capture efficiency test run, kilograms; and

- $TVH_{\text{uncaptured}}$ = Total mass of total volatile hydrocarbon that is not captured by the emission capture system and that exits from the temporary total enclosure or building enclosure during the capture efficiency test run, kilograms.
- e. Determine the capture efficiency of the emission capture system as the average of the capture efficiencies measured in the three test runs; and
5. As an alternative to the procedures specified in paragraph (3) and (4) of permit condition 10.42 and subject to the approval of the Secretary, the owner or operator may determine capture efficiency using any other capture efficiency protocol and test methods that satisfy the criteria of either the Data Quality Objective (DQO) or Lower Confidence Limit (LCL) approach as described in 40 CFR part 63, Subpart KK, Appendix A.

10.43 Determining add-on control device destruction efficiency

In accordance with ARSD 74:36:08:37, as referenced to 40 CFR § 63.3966, the owner or operator must use the following procedures and test methods to determine the add-on control device emission destruction or removal efficiency. The owner or operator must conduct three test runs and each test run must last at least 1 hour. For a magnet wire coating machine, the owner or operator may use the procedures in 40 CFR Part 63, Subpart MMMM, Appendix A, section 3.0 as an alternative:

1. For all types of add-on control devices, use the following test methods:
 - a. Use 40 CFR Part 60, Appendix A, Method 1 or 1A as appropriate to select sampling sites and velocity traverse points;
 - b. Use 40 CFR Part 60, Appendix A, Method 2, 2A, 2C, 2D, 2F, or 2G as appropriate to measure gas volumetric flow rate;
 - c. Use 40 CFR Part 60, Appendix A, Method 3, 3A, or 3B as appropriate for gas analysis to determine dry molecular weight;
 - d. Use 40 CFR Part 60, Appendix A, Method 4 to determine stack gas moisture; and
 - e. Methods for determining gas volumetric flow rate, dry molecular weight, and stack gas moisture must be performed, as applicable, during each test run;
2. Measure total gaseous organic mass emissions as carbon at the inlet and outlet of the add-on control device simultaneously, using either 40 CFR Part 60, Appendix A, Method 25 or 25A:
 - a. Use Method 25 if the add-on control device is an oxidizer and the owner or operator expect the total gaseous organic concentration as carbon to be more than 50 parts per million (ppm) at the control device outlet;
 - b. Use Method 25A if the add-on control device is an oxidizer and the owner or operator expect the total gaseous organic concentration as carbon to be 50 ppm or less at the control device outlet; and
 - c. Use Method 25A if the add-on control device is not an oxidizer;
3. If two or more add-on control devices are used for the same emission stream, then the owner or operator must measure emissions at the outlet to the atmosphere of each device. For example, if one add-on control device is a concentrator with an outlet to the atmosphere for the high-volume dilute stream that has been treated by the concentrator, and a second add-on control device is an oxidizer with an outlet to the atmosphere for the

low-volume concentrated stream that is treated with the oxidizer, the owner or operator must measure emissions at the outlet of the oxidizer and the high volume dilute stream outlet of the concentrator;

4. For each test run, determine the total gaseous organic emissions mass flow rates for the inlet and the outlet of the add-on control device using Equation 10-25. If there is more than one inlet or outlet to the add-on control device, the owner or operator must calculate the total gaseous organic mass flow rate using Equation 10-25 for each inlet and each outlet and then total all of the inlet emissions and total all of the outlet emissions;

Equation 10-25 – Calculating mass flow rate

$$M_f = (Q_{sd}) \times (C_c) \times (12) \times (0.0416) \times (10^{-6})$$

Where:

- M_f = Total gaseous organic emissions mass flow rate, kilograms per hour;
 - C_c = Concentration of organic compounds as carbon in the vent gas, as determined by Method 25 or Method 25A, parts per million by volume (ppmv), dry basis;
 - Q_{sd} = Volumetric flow rate of gases entering or exiting the add-on control device, as determined by Method 2, 2A, 2C, 2D, 2F, or 2G, dry standard cubic meters per hour (dscm/h); and
 - 0.0416 = Conversion factor for molar volume, kilogram-moles per cubic meter (mol/m^3) at 293 Kelvin (K) and 760 millimeters of mercury (mmHg).
5. For each test run, determine the add-on control device organic emissions destruction or removal efficiency using Equation 10-26; and

Equation 10-26 – Calculating mass flow rate

$$DRE = \left(\frac{M_{fi} - M_{fo}}{M_{fi}} \right) \times 100$$

Where:

- DRE = Organic emissions destruction or removal efficiency of the add-on control device, percent;
 - M_{fi} = Total gaseous organic emissions mass flow rate at the inlet(s) to the add-on control device, using Equation 10-25, kilograms per hour; and
 - M_{fo} = Total gaseous organic emissions mass flow rate at the outlet(s) of the add-on control device, using Equation 10-25, kilograms per hour.
6. Determine the emission destruction or removal efficiency of the add-on control device as the average of the efficiencies determined in the three test runs and calculated in Equation 10-26.

10.44 Establishing emission capture system and add-on control device operating limits

In accordance with ARSD 74:36:08:37, as referenced to 40 CFR § 63.3967, during the performance test described in permit conditions 10.41, 10.42 and 10.43, the owner or operator

must establish the following operating limits required by permit condition 10.5 unless the owner or operator has received approval for alternative monitoring and operating limits from the Secretary:

1. If the owner or operator's add-on control device is a thermal oxidizer, establish the operating limits according to the following requirements:
 - a. 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 three test runs. The owner or operator must monitor the temperature in the firebox of the thermal oxidizer or immediately downstream of the firebox before any substantial heat exchange occurs; and
 - b. Use the data collected during the performance test to calculate and record the average combustion temperature maintained during the performance test. This average combustion temperature is the minimum operating limit for the owner or operator thermal oxidizer;
2. If the add-on control device is a catalytic oxidizer, establish the operating limits according to either paragraph (a) and (b) or (c) and (d) of this permit condition. If the source is a magnet wire coating machine, the owner or operator may use the procedures in 40 CFR Part 63, Subpart M, Appendix A, section 3.0 as an alternative:
 - a. During the performance test, the owner or operator must monitor and record the temperature just before the catalyst bed and the temperature difference across the catalyst bed at least once every 15 minutes during each of the three test runs; and
 - b. Use the data collected during the performance test to calculate and record the average temperature just before the catalyst bed and the average temperature difference across the catalyst bed maintained during the performance test. These are the minimum operating limits for the catalytic oxidizer; or
 - c. The owner or operator must monitor the temperature at the inlet to the catalyst bed and implement a site-specific inspection and maintenance plan for the catalytic oxidizer. During the performance test, the owner or operator must monitor and record the temperature just before the catalyst bed at least once every 15 minutes during each of the three test runs. Use the data collected during the performance test to calculate and record the average temperature just before the catalyst bed during the performance test. This is the minimum operating limit for the catalytic oxidizer; and
 - d. The owner or operator must develop and implement an inspection and maintenance plan for the catalytic oxidizer. The plan must address, at a minimum, the following requirements:
 - i. Annual sampling and analysis of the catalyst activity (i.e., conversion efficiency) following the manufacturer's or catalyst supplier's recommended procedures. If problems are found during the catalyst activity test, the owner or operator must replace the catalyst bed or take other corrective action consistent with the manufacturer's recommendations;
 - ii. Monthly external inspection of the catalytic oxidizer system, including the burner assembly and fuel supply lines for problems and, as necessary, adjust the equipment to assure proper air-to-fuel mixtures; and

- iii. Annual internal inspection of the catalyst bed to check for channeling, abrasion, and settling. If problems are found during the annual internal inspection of the catalyst, the owner or operator must replace the catalyst bed or take other corrective action consistent with the manufacturer's recommendations. If the catalyst bed is replaced and is not of like or better kind and quality as the old catalyst then the owner or operator must conduct a new performance test to determine destruction efficiency according to permit condition 10.43. If a catalyst bed is replaced and the replacement catalyst is of like or better kind and quality as the old catalyst, then a new performance test to determine destruction efficiency is not required and the owner or operator may continue to use the previously established operating limits for that catalytic oxidizer;
3. If the add-on control device is a regenerative carbon adsorber, establish the operating limits according to the following requirements:
 - a. The owner or operator must monitor and record the total regeneration desorbing gas (i.e., steam or nitrogen) mass flow for each regeneration cycle, and the carbon bed temperature after each carbon bed regeneration and cooling cycle for the regeneration cycle either immediately preceding or immediately following the performance test; and
 - b. The operating limits for the regenerative carbon adsorber are the minimum total desorbing gas mass flow recorded during the regeneration cycle and the maximum carbon bed temperature recorded after the cooling cycle;
4. If the add-on control device is a condenser, establish the operating limits according to the following requirements:
 - a. During the performance test, the owner or operator must monitor and record the condenser outlet (i.e., product side) gas temperature at least once every 15 minutes during each of the three test runs; and
 - b. Use the data collected during the performance test to calculate and record the average condenser outlet (i.e., product side) gas temperature maintained during the performance test. This average condenser outlet gas temperature is the maximum operating limit for the condenser;
5. If the add-on control device includes a concentrator, the owner or operator must establish operating limits for the concentrator according to the following requirements:
 - a. During the performance test, the owner or operator must monitor and record the desorption concentrate stream gas temperature at least once every 15 minutes during each of the three runs of the performance test;
 - b. Use the data collected during the performance test to calculate and record the average temperature. This is the minimum operating limit for the desorption concentrate gas stream temperature;
 - c. During the performance test, the owner or operator must monitor and record the pressure drop of the dilute stream across the concentrator at least once every 15 minutes during each of the three runs of the performance test; and
 - d. Use the data collected during the performance test to calculate and record the average pressure drop. This is the minimum operating limit for the dilute stream across the concentrator; and

6. For each capture device that is not part of a permanent total enclosure that meets the criteria of paragraph (1) of permit condition 10.42, establish an operating limit for either the gas volumetric flow rate or duct static pressure, as specified in the following requirements:
 - a. During the capture efficiency determination described in permit conditions 10.41 and 10.42, the owner or operator must monitor and record either the gas volumetric flow rate or the duct static pressure for each separate capture device in the emission capture system at least once every 15 minutes during each of the three test runs at a point in the duct between the capture device and the add-on control device inlet; and
 - b. Calculate and record the average gas volumetric flow rate or duct static pressure for the three test runs for each capture device. This average gas volumetric flow rate or duct static pressure is the minimum operating limit for that specific capture device; or
 - c. For a magnet wire coating machine, the owner or operator may use the procedures in 40 CFR Part 63 Subpart M, Appendix A, Section 2.0 as an alternative.

10.45 Continuous parameter monitoring system requirements

In accordance with ARSD 74:36:08:37, as referenced to 40 CFR § 63.3968(a), the owner or operator must install, operate, and maintain each continuous parameter monitoring system in accordance with the following applicable requirements:

1. The continuous parameter monitoring system must complete a minimum of one cycle of operation for each successive 15-minute period. The owner or operator must have a minimum of four equally spaced successive cycles of continuous parameter monitoring system operation in 1 hour;
2. The owner or operator must determine the average of all recorded readings for each successive 3-hour period of the emission capture system and add-on control device operation;
3. The owner or operator must record the results of each inspection, calibration, and validation check of the continuous parameter monitoring system;
4. The owner or operator must maintain the continuous parameter monitoring system at all times and have available necessary parts for routine repairs of the monitoring equipment;
5. The owner or operator must operate the continuous parameter monitoring system and collect emission capture system and add-on control device parameter data at all times that a controlled coating operation is operating, except during monitoring malfunctions, associated repairs, and required quality assurance or control activities including, if applicable, calibration checks and required zero and span adjustments. A monitoring malfunction is any sudden, infrequent, not reasonably preventable failure of the continuous parameter monitoring system to provide valid data. Monitoring failures that are caused in part by poor maintenance or careless operation are not malfunctions. Any period for which the monitoring system is out-of-control and data are not available for required calculation is a deviation from the monitoring requirements; and
6. The owner or operator must not use emission capture system or add-on control device parameter data recorded during monitoring malfunctions, associated repairs, out-of-control periods, or required quality assurance or control activities when calculating data averages. The owner or operator must use all the data collected during all other periods in

calculating the data averages for determining compliance with the emission capture system and add-on control device operating limits.

10.46 Capture system bypass line

In accordance with ARSD 74:36:08:37, as referenced to 40 CFR § 63.3968(b), for each emission capture system that contains bypass lines that could divert emissions away from the add-on control device to the atmosphere, the owner or operator must meet the requirements in paragraph (3) through (5) of permit condition 10.45 and the following requirements:

1. The owner or operator must monitor or secure the valve or closure mechanism controlling the bypass line in a non-diverting position in such a way that the valve or closure mechanism cannot be opened without creating a record that the valve was opened. The method used to monitor or secure the valve or closure mechanism must meet one of the following requirements:
 - a. Install, calibrate, maintain, and operate according to the manufacturer's specifications a flow control position indicator that takes a reading at least once every 15 minutes and provides a record indicating whether the emissions are directed to the add-on control device or diverted from the add-on control device. The time of occurrence and flow control position must be recorded, as well as every time the flow direction is changed. The flow control position indicator must be installed at the entrance to any bypass line that could divert the emissions away from the add-on control device to the atmosphere;
 - b. Secure any bypass line valve in the closed position with a car-seal or a lock-and-key type configuration. The owner or operator must visually inspect the seal or closure mechanism at least once every month to ensure that the valve is maintained in the closed position, and the emissions are not diverted away from the add-on control device to the atmosphere;
 - c. Ensure that any bypass line valve is in the closed (non-diverting) position through monitoring of valve position at least once every 15 minutes. The owner or operator must inspect the monitoring system at least once every month to verify that the monitor will indicate valve position;
 - d. Use an automatic shutdown system in which the coating operation is stopped when flow is diverted by the bypass line away from the add-on control device to the atmosphere when the coating operation is running. The owner or operator must inspect the automatic shutdown system at least once every month to verify that it will detect diversions of flow and shut down the coating operation; or
 - e. Install, calibrate, maintain, and operate according to the manufacturer's specifications a flow direction indicator that takes a reading at least once every 15 minutes and provides a record indicating whether the emissions are directed to the add-on control device or diverted from the add-on control device. Each time the flow direction changes, the next reading of the time of occurrence and flow direction must be recorded. The flow direction indicator must be installed in each bypass line or air makeup supply line that could divert the emissions away from the add-on control device to the atmosphere; and

2. If any bypass line is opened, the owner or operator must include a description of why the bypass line was opened and the length of time it remained open in the semiannual compliance reports required in permit condition 10.9.

10.47 Thermal oxidizer or catalytic oxidizer

In accordance with ARSD 74:36:08:37, as referenced to 40 CFR § 63.3968(c), if the owner or operator is using a thermal oxidizer or catalytic oxidizer as an add-on control device including those used with concentrators or with carbon adsorbers to treat desorbed concentrate streams, the owner or operator must comply with paragraph (1) through (6) of permit condition 10.45 and the following requirements:

1. For a thermal oxidizer, install a gas temperature monitor in the firebox of the thermal oxidizer or in the duct immediately downstream of the firebox before any substantial heat exchange occurs;
2. For a catalytic oxidizer, install gas temperature monitors upstream and/or downstream of the catalyst bed as required in paragraph (2) of permit condition 10.44; and
3. For all thermal oxidizers and catalytic oxidizers, the owner or operator must meet the following requirements for each gas temperature monitoring device:
 - a. Locate the temperature sensor in a position that provides a representative temperature;
 - b. Use a temperature sensor with a measurement sensitivity of 5 degrees Fahrenheit or 1.0 percent of the temperature value, whichever is larger;
 - c. Before using the sensor for the first time or when relocating or replacing the sensor, perform a validation check by comparing the sensor output to a calibrated temperature measurement device or by comparing the sensor output to a simulated temperature;
 - d. Conduct an accuracy audit every quarter and after every deviation. Accuracy audit methods include comparisons of sensor output to redundant temperature sensors, to calibrated temperature measurement devices, or to temperature simulation devices; and
 - e. Conduct a visual inspection of each sensor every quarter if redundant temperature sensors are not used.

10.48 Regenerative carbon adsorbers

In accordance with ARSD 74:36:08:37, as referenced to 40 CFR § 63.3968(d), if the owner or operator is using a regenerative carbon adsorber as an add-on control device, the owner or operator must monitor the total regeneration desorbing gas (i.e., steam or nitrogen) mass flow for each regeneration cycle, the carbon bed temperature after each regeneration and cooling cycle, and comply with paragraph (3) through (5) of permit condition 10.45 and the following:

1. The regeneration desorbing gas mass flow monitor must be an integrating device having a measurement sensitivity of plus or minus 10 percent capable of recording the total regeneration desorbing gas mass flow for each regeneration cycle;
2. The carbon bed temperature monitor must be capable of recording the temperature within 15 minutes of completing any carbon bed cooling cycle; and

3. For all regenerative carbon adsorbers, the owner or operator must meet the requirements in paragraph (3) of permit condition 10.47 for each temperature monitoring device.

10.49 Condensers

In accordance with ARSD 74:36:08:37 as referenced to 40 CFR § 63.3968(e), if the owner or operator is using a condenser, the owner or operator must monitor the condenser outlet (i.e., product side) gas temperature and comply with paragraph (1) through (6) of permit condition 10.45 and the following:

1. The temperature monitor must provide a gas temperature record at least once every 15 minutes; and
2. For all condensers, the owner or operator must meet the requirements in paragraph (3) of permit condition 10.47 for each temperature monitoring device.

10.50 Concentrators

In accordance with ARSD 74:36:08:37, as referenced to 40 CFR § 63.3968(f), if the owner or operator is using a concentrator, such as a zeolite wheel or rotary carbon bed concentrator, the owner or operator must comply with paragraph (1) through (6) of permit condition 10.45 and the following:

1. The owner or operator must install a temperature monitor in the desorption gas stream. The temperature monitor must meet the requirements in paragraph (3) of permit condition 10.47; and
2. The owner or operator must install a device to monitor pressure drop across the zeolite wheel or rotary carbon bed. The pressure monitoring device must meet the requirements in paragraph (2) of permit condition 10.51.

10.51 Emission capture systems

In accordance with ARSD 74:36:08:37, as referenced to 40 CFR § 63.3968(g), if the owner or operator is using a capture system monitoring system, the capture system monitoring system must comply with permit condition 10.46 and the following applicable requirements. For a magnet wire coating machine, the owner or operator may use the procedures in 40 CFR Part 63 Subpart M, Appendix A, Section 2.0 as an alternative:

1. For each flow measurement device, the owner or operator must meet the requirements in paragraph (1) through (6) of permit condition 10.45 and the following requirements:
 - a. Locate a flow sensor in a position that provides a representative flow measurement in the duct from each capture device in the emission capture system to the add-on control device;
 - b. Use a flow sensor with an accuracy of at least 10 percent of the flow;
 - c. Perform an initial sensor calibration in accordance with the manufacturer's requirements;
 - d. Perform a validation check before initial use or upon relocation or replacement of a sensor. Validation checks include comparison of sensor values with electronic signal simulations or via relative accuracy testing;

- e. Conduct an accuracy audit every quarter and after every deviation. Accuracy audit methods include comparisons of sensor values with electronic signal simulations or via relative accuracy testing;
 - f. Perform leak checks monthly; and
 - g. Perform visual inspections of the sensor system quarterly if there is no redundant sensor; and
2. For each pressure drop measurement device, the owner or operator must comply with the requirements in paragraph (1) through (6) of permit condition 10.45 and the following requirements:
- a. Locate the pressure sensor(s) in or as close to a position that provides a representative measurement of the pressure drop across each opening the owner or operator are monitoring;
 - b. Use a pressure sensor with an accuracy of at least 0.5 inches of water column or 5 percent of the measured value, whichever is larger;
 - c. Perform an initial calibration of the sensor according to the manufacturer's requirements;
 - d. Conduct a validation check before initial operation or upon relocation or replacement of a sensor. Validation checks include comparison of sensor values to calibrated pressure measurement devices or to pressure simulation using calibrated pressure sources;
 - e. Conduct accuracy audits every quarter and after every deviation. Accuracy audits include comparison of sensor values to calibrated pressure measurement devices or to pressure simulation using calibrated pressure sources;
 - f. Perform monthly leak checks on pressure connections. A pressure of at least 1.0 inches of water column to the connection must yield a stable sensor result for at least 15 seconds; and
 - g. Perform a visual inspection of the sensor at least monthly if there is no redundant sensor.

11.0 MACT Requirements – Subpart DDDDD

11.1 Date to comply

In accordance with ARSD 74:36:08:41, as referenced in 40 CFR §63.7495(b), the owner or operator shall comply with the requirements in this chapter by no later than January 31, 2016.

11.2 Notification of compliance status

In accordance with ARSD 74:36:08:41, as referenced in 40 CFR §§63.7530(d) and 63.9(h), the owner or operator shall submit a notification of compliance status no later than March 31, 2016. The notification of compliance status report shall contain the following:

1. Name of the facility;
2. A signed statement that indicates the owner or operator conducted a tune-up of Units # 13, 15, 16 and 22;

3. A signed certification that the energy assessment was completed and is an accurate depiction of Units #13, 15, 16 and 22 at the time of the assessment.

11.3 One-time energy assessment

In accordance with ARSD 74:36:08:41, as referenced in 40 CFR §§63.7500 and 63.7575, the owner or operator shall conduct a one-time energy assessment on Units #13, 15, 16 and 22. The one-time energy assessment shall be performed by a qualified energy assessor and include the following:

1. A visual inspection of Units #13, 15, 16 and 22;
2. An evaluation of operating characteristics of Units #13, 15, 16 and 22, specifications of energy using systems, operating and maintenance procedures, and unusual operating constraints;
3. An inventory of major energy use systems consuming energy from Units #13, 15, 16 and 22 and which are under the control of the owner or operator of Units #13, 15, 16 and 22;
4. A review of available architectural and engineering plans, facility operation and maintenance procedures and logs, and fuel usage;
5. A review of the owner's or operator's energy management practices and provide recommendations for improvements consistent with the definition of energy management practices, if identified;
6. A list of cost-effective energy conservation measures that are within the owner's or operator's control;
7. A list of the energy savings potential of the energy conservation measures identified; and
8. A comprehensive report detailing the ways to improve efficiency, the cost of specific improvements, benefits, and the time frame for recouping those investments.

If Units #13, 15, 16 and 22 are operated under an energy management program compatible with ISO 50001 satisfies the one-time energy assessment requirement. The one-time energy assessment shall consist of 8 on-site technical labor hours in length maximum, unless otherwise determined by the Secretary. Units #13, 15, 16 and 22 and any on-site energy use system(s) accounting for at least 50 percent of Units #13, 15, 16 and 22 energy shall be evaluated to identify energy savings opportunities during the one-time energy assessment.

11.4 Biennial tune-up

In accordance with ARSD 74:36:08:41, as referenced in 40 CFR §§63.7500 and 63.7540, the owner or operator shall conduct a biennial tune-up of Units #13, 15 and 16. The biennial tune-up shall meet the following specifications:

1. As applicable, inspect the burner, and clean or replace any components of the burner as necessary. The owner or operator may delay the burner inspection until the next scheduled shutdown. At units where entry into a piece of process equipment or into a storage vessel is required to complete the tune-up inspections, inspections are required only during planned entries into the storage vessel or process equipment;

2. Inspect the flame pattern, as applicable, and adjust the burner as necessary to optimize the flame pattern. The adjustment should be consistent with the manufacturer's specifications, if available;
3. Inspect the system controlling the air-to-fuel ratio, as applicable, and ensure that it is correctly calibrated and functioning properly. The owner or operator may delay the inspection until the next scheduled unit shutdown;
4. Optimize total emissions of carbon monoxide. This optimization should be consistent with the manufacturer's specifications, if available, and with any nitrogen oxide requirement to which the unit is subject;
5. Measure the concentrations in the effluent stream of carbon monoxide in parts per million, by volume, and oxygen in volume percent, before and after the adjustments are made. Measurements may be either on a dry or wet basis, as long as it is the same basis before and after the adjustments are made. Measurements may be taken using a portable carbon monoxide analyzer; and
6. Maintain on-site and submit, if requested by the Secretary, an annual report containing the following information:
 - a. The concentrations of carbon monoxide in the effluent stream in parts per million by volume, and oxygen in volume percent, measured at high fire or typical operating load, before and after the tune-up of the boiler or process heater; and
 - b. A description of any corrective actions taken as a part of the tune-up.

If Units #13, 15 and 16 are not operating on the required date for a tune-up, the tune-up must be conducted within 30 calendar days of startup. Each biennial tune-up shall be conducted no more than 25 months after the previous tune-up.

11.5 Biennial report

In accordance with ARSD 74:36:08:41, as referenced to 40 CFR §7550, the owner or operator shall submit a biennial tune-up compliance report. The biennial tune-up compliance report should contain the following information:

1. Company name and address;
2. Process unit information, emissions limitations, and operating parameter limitations;
3. Date of report and beginning and ending dates of the reporting period;
4. The total operating time during the reporting period; and
5. The date of the most recent tune-up conducted on Units #13, 15 and 16.

The first tune-up compliance report shall cover the period beginning on the compliance date and ending December 31. The report shall be postmarked no later than January 31. Each subsequent report and postmark date shall be biennially after the dates noted above.

11.6 Recordkeeping for Units #13, 15, 16 and 22

In accordance with ARSD 74:36:08:41, as referenced to 40 CFR §§63.7555(a)(1) and 63.7560, the owner or operator shall maintain records of each notification, report, and supporting documentation required by this chapter. All records shall be in a form suitable and readily available for expeditious review and maintained for 5 years following the date of each

occurrence, measurement, maintenance, corrective action, report, or record. Each record shall be maintained on site, or accessible from on site, for at least 2 years. Records may be maintained off site for the remaining 3 years.

A. Subpart DDDDD Requirements Specific to Unit #22

11.7 Initial tune-up

In accordance with ARSD 74:36:08:41, as referenced in 40 CFR §§63.7510(e), 63.7515(d), and 63.7540, the owner or operator shall conduct an initial tune-up on Unit #22. The tune-up shall meet the following specifications:

1. As applicable, inspect the burner, and clean or replace any components of the burner as necessary. The owner or operator may delay the burner inspection until the next scheduled shutdown. At units where entry into a piece of process equipment or into a storage vessel is required to complete the tune-up inspections, inspections are required only during planned entries into the storage vessel or process equipment;
2. Inspect the flame pattern, as applicable, and adjust the burner as necessary to optimize the flame pattern. The adjustment should be consistent with the manufacturer's specifications, if available;
3. Inspect the system controlling the air-to-fuel ratio, as applicable, and ensure that it is correctly calibrated and functioning properly. The owner or operator may delay the inspection until the next scheduled unit shutdown;
4. Optimize total emissions of carbon monoxide. This optimization should be consistent with the manufacturer's specifications, if available, and with any nitrogen oxide requirement to which the unit is subject;
5. Measure the concentrations in the effluent stream of carbon monoxide in parts per million, by volume, and oxygen in volume percent, before and after the adjustments are made. Measurements may be either on a dry or wet basis, as long as it is the same basis before and after the adjustments are made. Measurements may be taken using a portable carbon monoxide analyzer; and
6. Maintain on-site and submit, if requested by the Secretary, an annual report containing the following information:
 - a. The concentrations of carbon monoxide in the effluent stream in parts per million by volume, and oxygen in volume percent, measured at high fire or typical operating load, before and after the tune-up of the boiler or process heater; and
 - b. A description of any corrective actions taken as a part of the tune-up.

If Unit #22 is not operating on the required date for a tune-up, the tune-up must be conducted within 30 calendar days of startup.

11.8 Periodic tune-up

In accordance with ARSD 74:36:08:41, as referenced in 40 CFR §§63.7500(e) and 63.7540, the owner or operator shall conduct a tune-up of Unit #22 every 5 years. The tune-up shall meet the specifications in paragraph (1) through (6), inclusive, in permit condition 5D.3. Each 5-year tune-up shall be conducted no more than 61 months after the previous tune-up. If Unit #22 is not operating on the required date for a tune-up, the tune-up must be conducted within 30 calendar days of startup. The owner or operator may delay the burner inspection specified in paragraph (1) of permit condition 11.3 until the next scheduled or unscheduled unit shutdown, but the owner or operator shall inspect each burner at least once every 72 months.

11.9 Reporting requirements for Unit #22

In accordance with ARSD 74:36:08:41 as referenced to 40 CFR §7550, the owner or operator shall submit a compliance report for each 5-year tune-up. The first 5-year compliance report shall be postmarked no later than January 31 of the year the first tune-up is performed. Each subsequent report shall be postmark no later than January 31 of the year subsequent tune-ups are performed. The compliance report shall contain the following information:

1. Company and facility name and address;
2. Include the date of the most recent tune-up for Unit #22; and
3. Include the date of the most recent burner inspection if it was not done during the most recent tune-up.