

**Commonwealth of Kentucky
Energy and Environment Cabinet
Department for Environmental Protection
Division for Air Quality
300 Sower Boulevard, 2nd Floor
Frankfort, Kentucky 40601
(502) 564-3999**

Final

**AIR QUALITY PERMIT
Issued under 401 KAR 52:020**

Permittee Name: Century Aluminum of KY, GP
Mailing Address: 1627 State Route 3543; P.O. Box 500, Hawesville,
KY 42348

Source Name: Century Aluminum of KY, GP
Mailing Address: 1627 State Route 3543, Hawesville, KY 42348

Source Location: Co-located with Southwire Company

Permit ID: V-24-010
Agency Interest #: 1634
Activity ID: APE20210003
Review Type: Title V, Operating
Source ID: 21-091-00004

Regional Office: Owensboro Regional Office
3032 Alvey Park Dr. W., Suite 700
Owensboro, KY 42303
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County: Hancock

Application
Complete Date: January 31, 2022
Issuance Date: April 16, 2025
Expiration Date: April 16, 2030

Rick Shewekah

**For Michael J. Kennedy, P.E.
Director
Division for Air Quality**

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Permit	Permit Type	Activity#	Complete Date	Issuance Date	Summary of Action
V-24-010	Initial	APE20210003	1/31/2022	4/16/2025	Renewal Permit

SECTION A - PERMIT AUTHORIZATION

Pursuant to a duly submitted application the Kentucky Energy and Environment Cabinet (Cabinet) hereby authorizes the operation of the equipment described herein in accordance with the terms and conditions of this permit. This permit was issued under the provisions of Kentucky Revised Statutes (KRS) Chapter 224 and regulations promulgated pursuant thereto.

The permittee shall not construct, reconstruct, or modify any affected facilities without first submitting a complete application and receiving a permit for the planned activity from the permitting authority, except as provided in this permit or in 401 KAR 52:020, Title V Permits.

Issuance of this permit does not relieve the permittee from the responsibility of obtaining any other permits, licenses, or approvals required by the Cabinet or any other federal, state, or local agency.

Century Aluminum of Kentucky, and the adjacent Southwire Company, LLC, (AFS # 21-091-00009), are considered by the Division and the United States Environmental Protection Agency (U.S. EPA) Region IV, to be one source as defined in 401 KAR 51:017, Prevention of significant deterioration of air quality (PSD). Each source is subject to 401 KAR 52:020 and will be issued individual Title V operating permits. Pursuant to the respective Title V permits, each permittee is responsible and liable for their own violations unless there is a joint cause for the violations.

Definitions: The following definitions apply to all abbreviations and variables used in this permit:

AAQS	– Ambient air quality standards
BACT	– Best available control technology
CAM	– Compliance Assurance Monitoring
CB	– Carbon bake
CO	– Carbon monoxide
CWPB3	– Center-worked prebake three potline process
Division	– Kentucky Division for Air Quality
DC	– Dust Collector
ESP	– Electrostatic Precipitator
HAP	– Hazardous Air Pollutant
HF	– Hydrogen Fluoride (Gaseous)
NAAQS	– National Ambient Air Quality Standards
NO _x	– Nitrogen Oxides
PM	– Particulate Matter
PM ₁₀	– Particulate Matter equal to or smaller than 10 micrometers
PM _{2.5}	– Particulate Matter equal to or smaller than 2.5 micrometers
PSD	– Prevention of Significant Deterioration
PTE	– Potential to Emit
SO ₂	– Sulfur dioxide
TF	– Total Fluoride (Particulate & Gaseous)
VOC	– Volatile Organic Compounds
PM/PM ₁₀	– PM and PM ₁₀ standards are the same except as noted
PM _{2.5} /PM ₁₀	– PM ₁₀ and PM _{2.5} standards are the same except as noted
POM	– polycyclic organic matter
PMP	– Parametric Monitoring Plan
QIP	– Quality Improvement Plan

SECTION B - EMISSION POINTS, EMISSION UNITS, APPLICABLE REGULATIONS, AND OPERATING CONDITIONS

Subject Item A - Miscellaneous Particulate Sources

EP	Group	Equip. Desig.	Cons. Date	Description	Control Equipment	Emission limits, lbs/hr* PM/PM ₁₀	Operation Limits (Tons/Year)**
EMISSION GROUP 10							
1	10	2012	1996	Vacuum Unloading - Nozzle 1 (Alumina & Coke)	DC 10-2012	0.000565	500,000 coke/alumina
2	10	2013	1996	Vacuum Unloading- Nozzle 2 (Alumina & Coke)	DC 10-2013	0.000565	500,000 coke/alumina
3	10	0416	1996	Transfer Point, Dock Unload to Conveyor	DC 10-0416	0.001074	1,000,000 coke/alumina
4	10	0220	1996	Unloading Station, Rail	DC 10-0220	0.001074	1,000,000 coke/alumina
5	10	0105	1996	Transfer Point, Tower 1	DC 10-0105	0.001017	1,000,000 coke/alumina
6	10	0240	1996	Transfer Point, Tower 5	DC 10-0240	0.001221	360,000 coke/alumina
7	10	0311	1996	Silo, 4000 Ton, Coke #1 East	DC 10-0316	0.000942	250,000 tons coke
8	10	0023	1969	Silo, 20 Ton, Packing Coke Waste	DC 10-0313	0.001785	3,400 tons fluid coke
		0310	1996	Silo, 4000 Ton, Coke #2 West		0.000942	250,000 tons coke
		0312	1969	Silo, 750 Ton, Coke/Crushed Butts		0.000660	175,200 tons coke
		2023	1969	Silo, 200 Ton, Packing Coke		0.000004	3,400 tons fluid coke
9	10	0030	1969	Silo, 4000 Ton, Alumina, 1A, (Silo#1)	DC 10-0037	0.000085	75,000 tons alumina
10	10	0031	1969	Silo, 4000 Ton, Alumina, 1B, (Silo#2)	DC 10-0038	0.000085	75,000 tons alumina
		0160		Silo, 280 Ton, Lithium Carbonate East		0.000001	550 tons lithium carbonate
11	10	0032	1969	Silo, 4000 Ton, Alumina, 2A, (Silo # 3)	DC 10-0039	0.000085	75,000 tons alumina
12	10	0033	1969	Silo, 4000 Ton, Alumina 2B, (Silo #4)	DC 10-0040	0.000085	75,000 tons alumina
13	10	0034	1969	Silo, 4000 Ton, Alumina, 3A, (Silo #5)	DC 10-0041	0.000085	75,000 tons alumina
14	10	0035	1969	Silo, 4000 Ton, Alumina, 3B, (Silo # 6)	DC 10-0042	0.000085	75,000 tons alumina
15	10	0601	1969	Silo, 4000 Ton, Alumina, 4A, (Silo # 7)	DC 10-0611	0.000085	75,000 tons alumina
		0691		Silo, 420 Ton, Aluminum Fluoride, West		0.00000168	14,500 tons aluminum fluoride
16	10	0602	1969	Silo, 4000 Ton, Alumina, 4B, (Silo # 8)	DC 10-0612	0.0001***	75,000 tons alumina
17	10	1100	1999	Silo, 5000 Ton, Alumina, 5, (Silo # 9)	DC 10-1100	0.000198	175,000 tons alumina
EMISSION GROUP 31							
22	31	0409	1969	Green Carbon Building Vacuum System	DC 31-0409	0.000768	1,462.92 tons coke
23	31	0214	1969	Silo, 200 Ton, Crushed Butts	DC 31-0217	0.000284	75,500 tons crushed butts
24	31	0056	1969	Ball Mill, 10 Ton	DC 31-0068	0.001500	87,600 tons coke
25	31	0104	1996	Ball Mill, 15 Ton	DC 31-0109	0.002250	131,400 tons coke
26	31	0025 0046 0144 0202 0226 0274 0328 0042 0336 0080 0148 0278 0206 0287 0034 0155 0242	1969	<i>Green Carbon Material Handling:</i> Bucket Elevator (B-9), Surge Bin (5 Ton) (B-4), Crusher Double Roll (B-3), Bucket Elevator (B-10), Conveyor Screw 16" (A-10), Bucket Elevator (A-9), Bin Fine Surge (A-6), Conveyor Screw 16" (A-18), Bucket Elevator (A-16), Bin Coarse Surge (A-7), Bucket Elevator (B-7), Conveyor Screw 16" (A-17), Bucket Elevator (A-14), Bin Butts 5 Ton (A-12), Bin Scrap 20 Ton (A-11), Bucket Elevator (A-5) Conveyor Screw 24" (A-1)	DC 31-0380	Combined: 0.335789	204,570 tons coke per source

SECTION B - EMISSION POINTS, EMISSION UNITS, APPLICABLE REGULATIONS, AND OPERATING CONDITIONS (CONTINUED)

EP	Group	Equip. Desig.	Cons. Date	Description	Control Equipment	Emission limits, lbs/hr* PM/PM ₁₀	Operation Limits (Tons/Year)**
EMISSION GROUP 33							
36	33	0056	1969	Cleaning, Baked Anode	DC 33-0075	0.001898	235,200 tons baked anodes
38	33	0093 0174	1969	Conveying System, Packing Coke, CB1 & CB2 Silo, 100 Ton, Packing Material	DC 31-0169	0.001214 0.000004	2,312 tons packing coke 3,400 tons packing coke
39	33	3028	1999	Conveying System, Packing Coke Dust, CB3	DC 33-3028 Vents inside building	0.000571	1,088 tons packing coke
40	33	0365	1969	Vacuum Cleaning System	DC 33-0365	0.000084	160 tons packing coke
41a	33	0240 0244	1999	Silo, 200 Ton, Fresh Alumina Silo, 200 Ton, Reacted Alumina	Dry Alumina Scrubber 33-0140	0.000040 0.000040	17,520 tons alumina 17,520 tons reacted alumina
42	33	0054	1969	NKM Crane, CB1N	DC 33-0054 Vents inside building	0.011216	21,360 tons packing coke
43	33	0055	1969	NKM Crane, CB1S	DC 33-0055 Vents inside building	0.011216	21,360 tons packing coke
44	33	0310	1969	NKM Crane, CB2N	DC 33-0310 Vents inside building	0.008412	16,020 tons packing coke
45	33	0350	1969	NKM Crane, CB2S	DC 33-0350 Vents inside building	0.008412	16,020 tons packing coke
46	33	3001	1999	ECL Crane, CB3 Multipurpose	DC 33-3001 Vents inside building	0.016825	32,040 tons packing coke
47	33	0081	1969	Bin, Baked Anode Dust, CB1	Vents inside building	PM ₁₀ = 0.069630 PM = 0.1090	1,326 tons packing coke dust
48	33	0330	1969	Bin, Baked Anode Dust, CB2	Vents inside building	PM ₁₀ = 0.051776 PM = 0.0810	986 tons packing coke dust
EMISSION GROUP 34							
56	34	2016	1969	Saw, Stub Cut-Off	Cyclone 34-2838	PM ₁₀ = 0.163 PM = 0.232877	1,500 tons anode bars
57	34	2017	1969	Jig #1, Stub Welding	Vents to Atmosphere	0.0116***	12 tons welding rod***
58	34	2018	1969	Jig #2, Stub Welding	Vents to Atmosphere	0.0116***	12 tons welding rod***
59	34	2019	1969	Jig #3, Stub Welding	Vents to Atmosphere	0.0116***	12 tons welding rod***
60	34	2050	2008	Jig #4, Stub Welding	Vents to Atmosphere	0.0116***	12 tons welding rod***
62	34	0020 0021	1969	Tumble Mill #1 Tumble Mill #2	DC 34-0074	0.034932 0.034932	4,000 tons cast iron 4,000 tons cast iron
63	34	2104 2105 2115	1969 1969 2011	Furnace #1, Induction, Cast Iron (2 ton) Furnace #2, Induction, Cast Iron (2 ton) Furnace #3, Induction, Cast Iron (2 ton)	DC 34-2100	0.003699 0.003699 0.003699	4,000 tons cast iron 4,000 tons cast iron 4,000 tons cast iron

SECTION B - EMISSION POINTS, EMISSION UNITS, APPLICABLE REGULATIONS, AND OPERATING CONDITIONS (CONTINUED)

EP	Group	Equip. Desig.	Cons. Date	Description	Control Equipment	Emission limits, lbs/hr* PM/PM ₁₀	Operation Limits (Tons/Year)**
64	34	0078	1969	Furnace, Aluminum Spray	DC 34-9052	Combined: 0.010894	2,750 tons aluminum 34.80 MMscf natural gas
65	34	2028 2087 2027 2021	1969	Central Butt Cleaning, Chip & Clean Central Butt Cleaning, Kent Chipper Central Butt Cleaning, Manual Backup Chipper Central Butt Cleaning, Butt Chipper	DC 34-2074	Combined: 0.001909	50,000 tons anode butts per source
66	34	0096 0146	1969	Shot Blast Cleaner-Anode Butt Shot Blast Cleaner-Anode Rod/Stub	DC 34-0165	0.732591 0.855822	75,500 tons spent rodded anodes 88,200 tons anode rods
67	34	0105 0107 0113 2031	1969 1969 2011 1969	Crusher #1, Primary Butt Crusher #2, Primary Butt Press #1, Primary Butt Press #2, Primary Butt	DC 34-0157	Combined: 0.000745	75,500 tons spent, rodded anodes butts per source
70	34	1110 0118	1969	Crusher, Secondary Butt Crusher, Tertiary Butt	DC 34-0154	0.000186 0.000186	75,500 tons spent anodes each
164	34		2020	Jig #5, Stub Welding	Vents to Atmosphere	---	---
EMISSION GROUP 42							
80	42	4217 3400 3401 3405 3408 3410 3411 3414 3417 3420 3426 0165 0692	2014	<u>Bath Reclaim including:</u> Anode Cleanings Storage Building Grizzly Screen Vibrating Feeder, Bath Crushing Rotary Breaker Bucket Elevator, Magnetic Separator Magnetic Separator #1, Bath Crushing Magnetic Separator #2, Bath Crushing Bucket Elevator, Crushed Anode Cleaning Storage Silo, North, 400 Ton, Crushed Anode Bath Silo, South, 400 Ton, Crushed Anode Bath Bucket Elevator, Anode Cover Delivery to Belt Silo, 420 Ton, Anode Cover Material, East Silo, 420 Ton, Anode Cover Material, West	DC 42-3427 DC10-0039 DC10-0612	 ***** *****	262,800 tons per year combined
81	42	0071 2025	1996	Silo, 100 Ton, Bath Reclaim Silo, 300 Ton, Bath Reclaim	DC 42-3034	0.000051 0.000051	45,000 tons bath per source
82	42	0021 2026 2028 2031 2031 2032 2032 2033 2034 2036 2030	1969	<u>Legacy Bath Reclaim including:</u> Hopper Bucket Elevator Screw Conveyor Belt Conveyor BC-3, Loading Belt Conveyor BC-3, Discharge Belt Conveyor BC-2, Loading Belt Conveyor BC-2, Discharge Belt Conveyor BC-1, Crusher Vibrating Feeder Vibrating Screen	DC 42-0066	Combined: 0.000981	45,000 tons bath per source
83	42	0034	1969	Transfer Point & Receiver Bin, 7.5 ton, Crushed Bath (43)	DC 43-0051	0.000051	45,000 tons crushed bath

SECTION B - EMISSION POINTS, EMISSION UNITS, APPLICABLE REGULATIONS, AND OPERATING CONDITIONS (CONTINUED)

EP	Group	Equip. Desig.	Cons. Date	Description	Control Equipment	Emission limits, lbs/hr* PM/PM ₁₀	Operation Limits (Tons/Year)**
84a	42	0018	1969	<i>Non-Subpart LL Sources:</i> Silo, 100 Ton, Surge Lines 1 & 2 (43)	Wet Scrubber System 43-2001 (Multiclone, ESP, Wet Scrubber Towers)	Individually: PM ₁₀ = 0.0691 PM = 0.119	15,330 tons
		0029		Potline 1A-5 Ton Fill Station			15,374 tons
		0030		Potline 1B-5 Ton Fill Station			15,374 tons
		0031		Potline 2A-5 Ton Fill Station			15,374 tons
		0032		Potline 2B-5 Ton Fill Station			15,374 tons
		0070		Airveying to 5 Ton Silos, Lines 1 & 2 (43)			61,495 tons
		0088		Airveying to 5 Ton Silos, Lines 3 & 4 (43)			61,495 tons
		0315		Potline 3A-5 Ton Fill Station			15,374 tons
		0316		Potline 3B-5 Ton Fill Station			15,374 tons
		0318		Silo, 100 Ton, Surge Lines 3 & 4 (43)			15,330 tons
		0439		Potline 4A-5 Ton Fill Station			15,374 tons
		0440		Potline 4B-5 Ton Fill Station			15,374 tons
		2569		Pelletizer Dryer (43)			22.73 MMscf nat. gas
		2580		Pelletizer System (43)			24,000 tons ESP dust
		3441		Cover Hopper Loading Station, East			
		3443		Cover Hopper Loading Station, West			
91	42	1200	1999	Potline 5A-5 Ton, Fill Station	DC 42-1200	0.000017	15,374 tons
92	42	1100	1999	Potline 5B-5 Ton, Fill Station	DC 42-1100	0.000017	15,374 tons
93	42	0152	1969	Silo, 450 Ton, Lime Unloading	DC 43-0160	0.002836	6,500 tons lime
94	42	1156	1999	Silo, 150 Ton, Fresh Alumina	DC 48-1615	0.000396	175,000 tons
		1400		Silo, 100 Ton, Anode Cleanings		0.000020	8,687 tons
		1615		Silo, 150 Ton, Reacted Alumina		0.000040	17,520 tons
		1800		Silo, 600 Ton, Alumina Silo 5A		0.000198	87,500 tons
		1700		Silo, 600 Ton, Alumina Silo 5B		0.000198	87,500 tons
95	42	1500	1999	Silo, 85 Ton, Sodium Carbonate (48)	DC 48-1500	0.001103	2,100 tons sodium carbonate
EMISSION GROUP 44							
111	44	0004	1998	Metal Purification Unit	DC 44-0033	0.002399	316,000 tons aluminum
112A	44	0500	2002	Crucible Cleaner Equipment	DC 45-0501	0.052055	8,000 tons bath
112B				Crucible Cleaner Entry Hood	DC 45-0503		

*, ** - These columns contain self-imposed emission limitations and operating limitations to ensure compliance with modeling performed according to 401 KAR 51:017.

*** - Revision V-08-12 R2 – This revision is to the self-imposed PSD avoidance limits and operating limits and does not affect or raise the PSD avoidance caps.

**** - Revision V-08-012 R3 – This revision is for the addition of a new bath crushing system

***** - The two anode cover material silos previously contained aluminum fluoride and bath material. They cannot be reverted to using the original material without reinstatement of the original limitations. They were previously part of Emission Group 10, but have been moved to Emission Group 42 since they share a combined limit.

APPLICABLE REGULATIONS

401 KAR 59:010, *New process operations*, applicable with respect to each affected facility or source, associated with a process operation, which commenced on or after July 2, 1975.

401 KAR 61:020, *Existing process operations*, applicable with respect to each affected facility or source, associated with a process operation, which commenced before July 2, 1975.

40 CFR 64, *Compliance Assurance Monitoring*, applicable to EP 66 with respect to PM/PM₁₀. Refer to Appendix A-4.

Note: The emission limitations in the table above supersede the mass emission standards (PM/PM₁₀) of 401 KAR 59:010 and 61:020

SECTION B - EMISSION POINTS, EMISSION UNITS, APPLICABLE REGULATIONS, AND OPERATING CONDITIONS (CONTINUED)**STATE-ORIGIN REQUIREMENTS:**

401 KAR 63:020, *Potentially hazardous matter or toxic substances*, applies to each affected facility which emits or may emit potentially hazardous matter or toxic substances.

1. Operating Limitations:

- a. The operational limits listed in the above tables are based upon a 12-month rolling total and shall not be exceeded. Emission units that have a combined process throughput limit shall calculate a combined throughput by adding individual throughput for the respective units. [Self-imposed to ensure compliance with modeling performed according to 401 KAR 51:017]

Compliance Demonstration Method:

Refer to **5. Specific Recordkeeping Requirements.**

- b. The associated control device(s) shall be operated at all times when the units listed above are in operation.

Compliance Demonstration Method:

Refer to **5. Specific Recordkeeping Requirements.**

2. Emission Limitations:

- a. The permittee shall not exceed the limitations identified in the table above. Emission units that have a combined emission limit shall calculate combined emissions by adding individual emissions for the respective units. [Self-imposed to ensure compliance with modeling performed according to 401 KAR 51:017]

Compliance Demonstration Method:

For those units with emission limitations identified in the table above, compliance with the emission limits in the table above is assumed when complying with the self-imposed operating limitations.

- b. For each emission unit constructed on or after July 2, 1975:
 - i. The permittee shall not cause, suffer, allow, or permit any continuous emission into the open air from a control device or stack associated with any affected facility which is equal to or greater than twenty (20) percent opacity. [401 KAR 59:010, Section 3(1)(a)]
 - ii. Hourly particulate emissions as measured by Reference Method 5, Appendix A, 40 CFR 60 (if required), averaged over the minimum specified time, shall not exceed the PM/PM₁₀ emission limits as listed in the tables above.
 - iii. For emissions from a control device or stack the permittee shall not cause, suffer, allow or permit the emission into the open air of particulate matter from any affected facility which is in excess of the quantity specified in 401 KAR 59:010, Appendix A. [401 KAR 59:010, Section 3(2)]
 - 1) For process weight rates ≤ 0.5 tons/hour: 2.34 lbs/hour
 - 2) For process weight rates ≤ 30 tons/hour: $E'_{PMj} = 3.59P_j^{0.62}$
 - 3) For process weight rates > 30 tons/hour: $E'_{PMj} = 17.31P_j^{0.16}$

SECTION B - EMISSION POINTS, EMISSION UNITS, APPLICABLE REGULATIONS, AND OPERATING CONDITIONS (CONTINUED)

Where:

j = Emission Unit;

E'_{PMj} = The allowable particulate emission rate for unit j in pounds/hour;

P_j = The process weight rate in tons/hour

Compliance Demonstration Method:

Compliance with the hourly particulate emission limits described above shall be determined by comparing the allowable rate to the actual rate as calculated below:

$$E_{PMij} = \frac{P_{ij} \times EF_{PMj}}{h_{ij}} \times (1 - CE_j)$$

Where:

i = month;

j = unit;

E_{PMij} = actual average hourly particulate emission rate from unit j during month i (pounds/hour);

P_{ij} = actual specific operating parameter for month i (units/month);

EF_{PMj} = overall uncontrolled particulate emission factor as determined from the most recent performance test or approved in the most recent permit revision for unit j (pounds/unit);

h_{ij} = actual total hours of operation for unit j during month i (hours/month)

CE_j = overall control efficiency (%) of any air pollution control equipment associated with unit j .

For those units with self-imposed emission limitations identified in the table above, compliance with the 401 KAR 59:010 mass emission standard is assumed when complying with the self-imposed operating limitations. Refer to **4. Specific Monitoring Requirements** and **5. Specific Recordkeeping Requirements** for compliance with the opacity standard.

- c. For each emission unit constructed before July 2, 1975:
 - i. The permittee shall not cause, suffer, allow, or permit any continuous emission into the open air from a control device or stack associated with any affected facility which is equal to or greater than forty (40) percent opacity. [401 KAR 61:020, Section 3(1)(a)]
 - ii. Hourly particulate emissions as measured by Reference Method 5, Appendix A, 40 CFR 60 (if required), averaged over three hours or the minimum specified time, shall not exceed the PM/PM₁₀ emission limits as listed in the tables above.
 - iii. For emissions from a control device or stack the permittee shall not cause, suffer, allow or permit the emission into the open air of particulate matter from any affected facility which is in excess of the quantity specified in 401 KAR 61:020, Appendix A: [401 KAR 61:020, Section 3(2)(a)]
 - 1) For process weight rates ≤ 0.5 tons/hour: 2.58 lbs/hour
 - 2) For process weight rates ≤ 30 tons/hour: $E'_{PMj} = 4.10P_j^{0.67}$
 - 3) For process weight rates > 30 tons/hour: $E'_{PMj} = 55.0P_j^{0.11} - 40$

Where:

SECTION B - EMISSION POINTS, EMISSION UNITS, APPLICABLE REGULATIONS, AND OPERATING CONDITIONS (CONTINUED)

- j = Emission Unit;
 E'_{PMj} = The allowable particulate emission rate for unit j in pounds/hour;
 P_j = The process weight rate in tons/hour

Compliance Demonstration Method:

Compliance with the hourly particulate emission limits described above shall be determined by comparing the allowable rate to the actual rate as calculated below:

$$E_{PMij} = \frac{P_{ij} \times EF_{PMj}}{h_{ij}} \times (1 - CE_j)$$

Where:

- i = month;
 j = unit;
 E_{PMij} = actual average hourly particulate emission rate from unit j during month i (pounds/hour);
 P_{ij} = actual specific operating parameter for month i (units/month);
 EF_{PMj} = overall uncontrolled particulate emission factor as determined from the results of the most recent performance test or approved in the most recent permit revision for unit j (pounds/unit);
 h_{ij} = actual total hours of operation for unit j during month i (hours/month)
 CE_j = overall control efficiency (%) of any air pollution control equipment associated with unit j .

For those units with self-imposed emission limitations identified in the table above, compliance with the 401 KAR 61:020 mass emission standard is assumed when complying with the self-imposed operating limitations. Refer to **4. Specific Monitoring Requirements** and **5. Specific Recordkeeping Requirements** for compliance with the opacity standard.

- d. The permittee shall not allow any affected facility to emit potentially hazardous matter or toxic substances in such quantities or duration as to be harmful to the health and welfare of humans, animals, and plants. [401 KAR 63:020]

Compliance Demonstration Method:

Based upon the emission rates of toxics and hazardous air pollutants determined by the Cabinet using information provided in the application and supplemental information submitted by the source, the Cabinet determines the affected facility to be in compliance with 401 KAR 63:020.

3. Testing Requirements:

Pursuant to 401 KAR 61:005, Section 2(2), 401 KAR 59:005, Section 2(2), and 401 KAR 50:045, Section 1, performance testing using the reference methods specified in 401 KAR 50:015 shall be conducted if required by the Cabinet.

4. Specific Monitoring Requirements:

- a. The permittee shall monitor monthly and 12-month rolling throughputs processed

SECTION B - EMISSION POINTS, EMISSION UNITS, APPLICABLE REGULATIONS, AND OPERATING CONDITIONS (CONTINUED)

through each emission unit. [401 KAR 52:020, Section 10]

- b. The permittee shall perform a qualitative visual observation of the opacity of emissions at each stack no less than weekly while the affected facility is operating. If visible emissions from the stacks are observed (not including condensed water in the plume), the permittee shall determine the opacity using U.S. EPA Reference Method 9. In lieu of determining the opacity using U.S. EPA Reference Method 9, the permittee shall immediately perform a corrective action which results in no visible emissions (not including condensed water in the plume). [401 KAR 52:020, Section 10]
- c. Refer to **SECTION F** for general monitoring requirements.
- d. For EP66, refer to Appendix A for CAM requirements pursuant to 40 CFR 64.

5. Specific Recordkeeping Requirements:

- a. The permittee shall maintain a log of the qualitative visual observations made as specified in **4. Specific Monitoring Requirements** including the date, time, initials of observer, whether any emissions were observed (yes/no), and any U.S. EPA Reference Method 9 readings taken. [401 KAR 52:020, Section 10]
- b. For each emission unit listed above, the permittee shall maintain records of the following: [401 KAR 52:020, Section 10]
 - i. Monthly and 12-month rolling process throughputs;
 - ii. Monthly average emission rates (lb/hr), calculated monthly; and
 - iii. Preventative maintenance and/or equipment inspections performed.
- c. Refer to **SECTION F** for general recordkeeping requirements.
- d. For EP 66:
 - i. The permittee shall comply with the recordkeeping requirements specified in **SECTION F**. The permittee shall maintain records of monitoring data, monitor performance data, corrective actions taken, any written quality improvement plan required pursuant to 40 CFR 64.8 and any activities undertaken to implement a quality improvement plan, and other supporting information required to be maintained under 40 CFR 64 (such as data used to document the adequacy of monitoring, or records of monitoring maintenance or corrective actions). [40 CFR 64.9(b)(1)]
 - ii. Instead of paper records, the permittee may maintain records on alternative media, such as microfilm, computer files, magnetic tape disks, or microfiche, provided that the use of such alternative media allows for expeditious inspection and review, and does not conflict with other applicable recordkeeping requirements. [40 CFR 64.9(b)(1)]

6. Specific Reporting Requirements:

- a. Any exceedance over the individual operational (throughput) limits shall be reported to the Division within thirty days after the exceedance. [401 KAR 52:020, Section 10]

SECTION B - EMISSION POINTS, EMISSION UNITS, APPLICABLE REGULATIONS, AND OPERATING CONDITIONS (CONTINUED)

- i. Following initial notification of a throughput exceedance, monthly reports for the individual unit shall be submitted, by the fifteenth of each month, to the Division's Owensboro Regional Office.
 - ii. The report shall contain a calculation of the individual emission units' hourly emissions (monthly average) and 12-month PM/PM₁₀ emissions to show compliance with any limit.
 - iii. Monthly reports shall be submitted until 12 consecutive months have passed without any exceedance of limits.
- b. Refer to **SECTION F** for general reporting requirements.
- c. For EP 66:
- i. On and after the date specified in 40 CFR 64.7(a) by which the permittee must use monitoring that meets the requirements of 40 CFR 64, the permittee shall submit monitoring reports to the Division in accordance with **SECTION F**. [40 CFR 64.9(a)(1)]
 - ii. A report for monitoring under 40 CFR 64 shall include, at a minimum, the information required under 40 CFR 70.6(a)(3)(iii) and the following information, as applicable: [40 CFR 64.9(a)(2)]
 - 1) Summary information on the number, duration and cause (including unknown cause, if applicable) of excursions or exceedances, as applicable, and the corrective actions taken; [40 CFR 64.9(a)(2)(i)]
 - 2) Summary information on the number, duration and cause (including unknown cause, if applicable) for monitor downtime incidents (other than downtime associated with zero and span or other daily calibration checks, if applicable); and [40 CFR 64.9(a)(2)(ii)]
 - 3) A description of the actions taken to implement a QIP during the reporting period as specified in 40 CFR 64.8. Upon completion of a QIP, the permittee shall include in the next summary report documentation that the implementation of the plan has been completed and reduced the likelihood of similar levels of excursions or exceedances occurring. [40 CFR 64.9(a)(2)(iii)]
 - iii. The threshold for requiring the implementation of a QIP is an accumulation of exceedances or excursions exceeding 5 percent duration of a pollutant-specific emissions unit's operating time for a semiannual reporting period. [40 CFR 64.8(a)]
 - iv. Refer to Appendix A for reporting requirements under 40 CFR 64.

7. Specific Control Equipment Operating Conditions:

- a. The control equipment specified in the above table shall be maintained according to the facility's preventative maintenance plan or manufacturer's recommendations. Maintenance shall include preventative maintenance activities as well as visual inspections. The permittee shall maintain records of all maintenance performed as well as any corrective actions taken to correct upset conditions. [401 KAR 52:020, Section 10]
- b. The control equipment specified in the above table shall be operated in a manner consistent with good air pollution control practices taking into account any recommended operating parameters listed in the manufacturer's specifications for the equipment or

SECTION B - EMISSION POINTS, EMISSION UNITS, APPLICABLE REGULATIONS, AND OPERATING CONDITIONS (CONTINUED)

those established during a compliance test. [401 KAR 52:020, Section 10]

- c. Refer to **SECTION E**.

SECTION B - EMISSION POINTS, EMISSION UNITS, APPLICABLE REGULATIONS, AND OPERATING CONDITIONS (CONTINUED)

Subject Item B - Fugitive Sources

EP	Group	Equip. Desig.	Cons. date	Description	Operation Limits (Tons/Year)
EMISSION GROUP 10					
FUG10	10	0018	1969	Conveyor, Barge to Tower 1	1,000,000 tons coke, alumina
FUG10	10	0230	1969	Conveyor, Railroad Unload Station to Tower 5	360,000 tons aluminum fluoride, coke, alumina
FUG10	10	0250	1969	Conveyor, Tower 1 to Tower 5	360,000 tons coke, alumina, aluminum fluoride
FUG10	10	0015	1969	Conveyor, Tower 1 to Alumina Silos	750,000 tons alumina, aluminum fluoride
FUG10	10	0305	1969	Conveyor, Tower 5 to Coke Silos	250,000 tons coke
EMISSION GROUP 31					
FUG31	31	-	1969	Fugitive Emissions from Green Carbon Mixing	-
EMISSION GROUP 34					
FUG34	34	-	1969	Fugitive Emissions from Rodding Operations	-
EMISSION GROUP 50					
FUG50	50	-	1969	Paved Roads	-
FUG50	50	-	1969	Unpaved Roads	-

APPLICABLE REGULATIONS:

401 KAR 51:017, *Prevention of significant deterioration of air quality*, applicable with respect to PM and PM₁₀

401 KAR 63:010, *Fugitive emissions*

1. Operating Limitations:

- a. The operational limits listed in the above tables are based upon a 12-month rolling total and shall not be exceeded. [Self-imposed to ensure compliance with modeling performed according to 401 KAR 51:017]

Compliance Demonstration Method:

Refer to **5. Specific Recordkeeping Requirements** (c).

- b. The permittee shall not cause, suffer, or allow any material to be handled, processed, transported, or stored; a building or its appurtenances to be constructed, altered, repaired, or demolished; or a road to be used without taking reasonable precaution to prevent particulate matter from becoming airborne. Reasonable precautions shall include, as applicable: [401 KAR 63:010, Section 3(1)]
 - i. Use, if possible, of water or suitable chemicals for control of dust in the demolition of existing buildings or structures, construction operations, the grading of roads or the clearing of land; [401 KAR 63:010, Section 3(1)(a)]
 - ii. Application and maintenance of asphalt, oil, water, or suitable chemicals on roads, materials stockpiles, and other surfaces which can create airborne dusts; [401 KAR 63:010, Section 3(1)(b)]
 - iii. Installation and use of hoods, fans, and fabric filters to enclose and vent the handling of dusty materials, or the use of water sprays or other measures to suppress the dust

SECTION B - EMISSION POINTS, EMISSION UNITS, APPLICABLE REGULATIONS, AND OPERATING CONDITIONS (CONTINUED)

- emissions during handling. Adequate containment methods shall be employed during sandblasting or other similar operations. [401 KAR 63:010, Section 3(1)(c)]
- iv. Covering, at all times when in motion, open bodied trucks transporting materials likely to become airborne; [401 KAR 63:010, Section 3(1)(d)]
 - v. The maintenance of paved roadways in a clean condition; or [401 KAR 63:010, Section 3(1)(e)]
 - vi. The prompt removal of earth or other material from a paved street to which earth or other material has been transported by trucking or earth moving equipment or erosion by water. [401 KAR 63:010, Section 3(1)(f)]
- c. If dust, fumes, gases, mist, odorous matter, vapors, or any combination thereof escape from a building or equipment in such a manner and amount as to cause a nuisance or to violate any administrative regulation, the secretary may, based on the cause, type, or amount of a fugitive emission, order that the building or equipment in which processing, handling and storage are done be tightly closed and ventilated in such a way that all air and gases and air or gas borne material leaving the building or equipment are treated by removal or destruction of air contaminants before discharge to the open air. [401 KAR 63:010, Section 3(3)]
 - d. At all times while in motion, open bodied trucks, operating outside company property, transporting materials likely to become airborne shall be covered. [401 KAR 63:010, Section 4(1)]
 - e. A person shall not cause, suffer, or allow earth or other material being transported by truck or earth moving equipment to be deposited onto a paved street or roadway. [401 KAR 63:010, Section 4(3)]

2. Emission Limitations:

The permittee shall not cause, suffer, or allow visible fugitive dust emissions beyond the lot line of the property on which the emissions originate, as determined by Reference Method 22 of Appendix A in 40 C.F.R. Part 60, for: [401 KAR 63:010, Section 3(2)]

- a. More than five (5) minutes of emission time during any sixty (60) minute observation period; or [401 KAR 63:010, Section 3(2)(a)]
- b. More than twenty (20) minutes of emission time during any twenty-four (24) hour period. [401 KAR 63:010, Section 3(2)(b)]

3. Testing Requirements:

Testing shall be conducted at such times as may be requested by the Cabinet. [401 KAR 50:045, Section 1]

4. Specific Monitoring Requirements:

- a. The permittee shall monitor the reasonable precautions taken to prevent particulate matter from becoming airborne on a daily basis. [401 KAR 52:020, Section 10]

SECTION B - EMISSION POINTS, EMISSION UNITS, APPLICABLE REGULATIONS, AND OPERATING CONDITIONS (CONTINUED)

- b. If fugitive dust emissions beyond the lot line of the property are observed, the permittee shall conduct U.S. EPA Reference Method 22 (visual determination of fugitive emissions) observations per Appendix A of 40 C.F.R. Part 60. In lieu of conducting U.S. EPA Reference Method 22, the permittee shall immediately perform a corrective action which results in no visible fugitive dust emissions beyond the lot line of the property. [401 KAR 52:020, Section 10]
- c. Refer to **SECTION F** for general monitoring requirements.

5. Specific Recordkeeping Requirements:

- a. The permittee shall maintain a log of the reasonable precautions taken to prevent particulate matter from becoming airborne, on a daily basis. Notation of the operating status, down-time, or relevant weather conditions are acceptable for entry to the log. [401 KAR 52:020, Section 10]
- b. The permittee shall maintain a log of the following: [401 KAR 52:020, Section 10]
 - i. Any Reference Method 22 performed and field records identified in Reference Method 22.
 - ii. Any corrective action taken and the results.
- c. The permittee shall maintain records of the monthly and 12-month rolling process throughputs for EP FUG10. [401 KAR 52:020, Section 10]
- d. Refer to **SECTION F** for general recordkeeping requirements.

6. Specific Reporting Requirements:

Refer to **SECTION F** for general reporting requirements.

SECTION B - EMISSION POINTS, EMISSION UNITS, APPLICABLE REGULATIONS, AND OPERATING CONDITIONS (CONTINUED)

Subject Item C - 40 CFR 63, Subpart LL - CWPB3 Sources (Potlines 1-4)

EP	Group	Equip. Desig.	Cons. Date	Description	Control Equipment	Operation Limits (Tons/Year)
EMISSION GROUP 42						
84b	42	4200 4220 4230 4240	1969	Potline #1, CWPB3 (45) Potline #2, CWPB3 (45) Potline #3, CWPB3 (45) Potline #4, CWPB3 (45)	Wet Scrubber System 43-2001 (Multiclone, ESP, Wet Scrubber Towers)	250,000 tons aluminum produced from all lines
85	42	2092	1969	Potline #1 Roof Monitor, CWPB3	None	62,500 tons aluminum produced
86	42	2093	1969	Potline #2 Roof Monitor, CWPB3	None	62,500 tons aluminum produced
87	42	2094	1969	Potline #3 Roof Monitor, CWPB3	None	62,500 tons aluminum produced
88	42	2088	1969	Potline #4 Roof Monitor, CWPB3	None	62,500 tons aluminum produced

APPLICABLE REGULATIONS:

401 KAR 51:017, *Prevention of significant deterioration of air quality*, applicable with respect to PM, PM₁₀, PM_{2.5}, SO₂, CO, and Fluorides

401 KAR 53:010, *Ambient air quality standards* (HF & TF)

401 KAR 61:165, *Existing primary aluminum reduction plants*

40 KAR 63:002, Section 2(4)(bb), 40 C.F.R. 63.840 through 63.855, Tables 1 through 4, and Appendix A (Subpart LL), *National Emission Standards for Hazardous Air Pollutants for Primary Aluminum Reduction Plants*

40 CFR 64, *Compliance Assurance Monitoring*, applicable to Potlines #1-4 with respect to PM/PM₁₀, and SO₂. Refer to Appendix A-1.

PRECLUDED REGULATIONS:

401 KAR 51:017, *Prevention of significant deterioration of air quality*, Sections 8 to 16, for VOC and NO_x.

1. Operating Limitations:

- a. At all times, the permittee shall operate and maintain any affected source, including associated air pollution control equipment and monitoring equipment, in a manner consistent with safety and good air pollution control practices for minimizing emissions. Determination of whether such operation and maintenance procedures are being used will be based on information available to the Administrator which may include, but is not limited to, monitoring results, review of operation and maintenance procedures, review of operation and maintenance records and inspection of the source. [40 CFR 63.843(f)]
- b. **Startup of potlines.** The permittee shall develop a written startup plan as described in 40 CFR 63.854(b) that contains specific procedures to be followed during startup periods of potline(s). Compliance with the applicable standards in 40 CFR 63.854(b) will be demonstrated through site inspection(s) and review of site records by the Division. [40 CFR 63.847(k)]

SECTION B - EMISSION POINTS, EMISSION UNITS, APPLICABLE REGULATIONS, AND OPERATING CONDITIONS (CONTINUED)

- c. ***Periods of operation other than startup.*** The permittee shall comply with the requirements of 40 CFR 63.854(a)(1) through (8) during periods of operation other than startup. [40 CFR 63.854(a)]
- i. Ensure the potline scrubbers and exhaust fans are operational at all times. [40 CFR 63.854(a)(1)]
 - ii. Ensure that the primary capture and control system is operating at all times. [40 CFR 63.854(a)(2)]
 - iii. Hood covers should be replaced as soon as possible after each potroom operation. [40 CFR 63.854(a)(3)]
 - iv. Inspect potlines daily and perform the work practices specified in 40 CFR 63.854(a)(4)(i) through (iii). [40 CFR 63.854(a)(4)]
 - 1) Identify unstable pots as soon as practicable but in no case more than 12 hours from the time the pot became unstable; [40 CFR 63.854(a)(4)(i)]
 - 2) Reduce cell temperatures to as low as practicable, and follow the written operating plan described in 40 CFR 63.854(b)(4) if the cell temperature exceeds the specified high temperature limit; and [40 CFR 63.854(a)(4)(ii)]
 - 3) Reseal pot crusts that have been broken as often and as soon as practicable. [40 CFR 63.854(a)(4)(iii)]
 - v. Ensure that hood covers fit properly and are in good condition. [40 CFR 63.854(a)(5)]
 - vi. If the exhaust system is equipped with an adjustable damper system, the hood exhaust rate for individual pots shall be increased whenever hood covers are removed from a pot, provided that the exhaust system will not be overloaded by placing too many pots on high exhaust. [40 CFR 63.854(a)(6)]
 - vii. Dust entrainment must be minimized during material handling operations and sweeping of the working aisles. [40 CFR 63.854(a)(7)]
 - viii. Only tapping crucibles with functional aspirator air return systems (for returning gases under the collection hooding) can be used, unless the Division approves an alternative tapping crucible. [40 CFR 63.854(a)(8)]
- d. ***Periods of startup.*** The permittee shall comply with the requirements of 40 CFR 63.854(a)(1) through (8) and 40 CFR 63.854(b)(1) through (4) during periods of startup for each affected potline. [40 CFR 63.854(b)]
- i. Develop a potline startup schedule before starting up the potline. [40 CFR 63.854(b)(1)]
 - ii. Keep records of the number of pots started each day. [40 CFR 63.854(b)(2)]
 - iii. Inspect potlines daily and adjust pot parameters to their optimum levels, as specified in the operating plan described in 40 CFR 63.854(b)(4), including, but not limited to: alumina addition rate, exhaust air flow rate, cell voltage, feeding level, anode current and liquid and solid bath levels. [40 CFR 63.854(b)(3)]
 - iv. Prepare a written operating plan to minimize emissions during startup to include, but not limited to, the requirements in 40 CFR 63.854(b)(1) through (3). The operating plan shall include a specified high temperature limit for pots that will trigger corrective action. [40 CFR 63.854(b)(4)]
- e. The permittee shall not exceed an aluminum production rate of 250,000 cumulative tons per year from Potlines #1-4, based on a 12-month rolling total. [401 KAR 51:017]

SECTION B - EMISSION POINTS, EMISSION UNITS, APPLICABLE REGULATIONS, AND OPERATING CONDITIONS (CONTINUED)

- f. The petroleum coke used to make the green anodes shall not exceed 3.0 percent sulfur by weight and the pitch shall not exceed 0.80 percent sulfur by weight as measured by the standard ASTM method, an approved alternative method, or by vendor Certificate of Analysis. [401 KAR 51:017]
- g. The permittee shall follow good design and combustion practices for the potlines to control CO emissions. The standard operating procedures for following the good operational procedures shall be kept available at site for inspection. Records shall be kept of continuing practices and maintenance. [401 KAR 51:017]

Compliance Demonstration Method:

Refer to **4. Specific Monitoring Requirements**, **5. Specific Recordkeeping Requirements**, and **6. Specific Reporting Requirements**.

2. Emission Limitations:

- a. For each potline (both roof monitor and stack emissions), the permittee shall not discharge or cause to be discharged into the atmosphere any emissions in excess of the following limits: [40 CFR 63.843(a)]
 - i. **TF limit.** Emissions of TF shall not exceed: 2.5 lb/ton (1.25 kg/Mg) of aluminum produced. [40 CFR 63.843(a)(1)(iii)]
 - ii. **POM limit.** Emissions of POM shall not exceed: 2.7 lb/ton (1.4 kg/Mg) of aluminum produced. [40 CFR 63.843(a)(2)(vi)]
 - iii. **PM limit.** Emissions of PM shall not exceed: 20 lb/ton (10 kg/Mg) of aluminum produced. [40 CFR 63.843(a)(3)(iii)]
 - iv. **COS limit.** Emissions of COS shall not exceed: 3.9 lb/ton (1.95 kg/Mg) of aluminum produced. [40 CFR 63.843(e)]
- b. The permittee may average emissions from potlines and demonstrate compliance with the limits in Tables 1 through 3 of 40 CFR 63, Subpart LL using the procedures in 40 CFR 63.846(b)(1) through (3). [40 CFR 63.846(b)]
 - i. Semiannual average emissions of TF shall not exceed the applicable emission limit in Table 1 of 40 CFR 63, Subpart LL. The emission rate shall be calculated based on the total primary and secondary emissions from all potlines comprising the averaging group over the period divided by the quantity of aluminum produced during the period, from all potlines comprising the averaging group. To determine compliance with the applicable emission limit in Table 1 of 40 CFR 63, Subpart LL for TF emissions, the permittee shall determine the average emissions (in lb/ton) from each potline from at least three runs per potline semiannually for TF secondary emissions and at least three runs per potline primary control system each year using the procedures and methods in 40 CFR 63.847 and 63.849. The permittee shall combine the results of secondary TF average emissions with the TF results for the primary control system and divide total emissions by total aluminum production. [40 CFR 63.846(b)(1)]
 - ii. Semiannual average emissions of POM shall not exceed the applicable emission limit in Table 2 of 40 CFR 63, Subpart LL. The emission rate shall be calculated based on the total primary and secondary emissions from all potlines comprising the averaging

SECTION B - EMISSION POINTS, EMISSION UNITS, APPLICABLE REGULATIONS, AND OPERATING CONDITIONS (CONTINUED)

- group over the period divided by the quantity of aluminum produced during the period, from all potlines comprising the averaging group. To determine compliance with the applicable emission limit in Table 2 of 40 CFR 63, Subpart LL for POM emissions, the permittee shall determine the average emissions (in lb/ton) from each potline from at least three runs per potline semiannually for POM secondary emissions and at least three runs per potline primary control system each year for POM primary emissions using the procedures and methods in 40 CFR 63.847 and 63.849. The permittee shall combine the results of secondary POM average emissions with the POM results for the primary control system and divide total emissions by total aluminum production. [40 CFR 63.846(b)(2)]
- iii. Semiannual average emissions of PM shall not exceed the applicable emission limit in Table 3 of 40 CFR 63, Subpart LL. The emission rate shall be calculated based on the total primary and secondary emissions from all potlines comprising the potline group over the period divided by the quantity of aluminum produced during the period, from all potlines comprising the averaging group. To determine compliance with the applicable emission limit in Table 3 of 40 CFR 63, Subpart LL for PM emissions, the permittee shall determine the average emissions (in lb/ton) from each potline from at least three runs per potline semiannually for PM secondary emissions and at least three runs per potline primary control system each year for PM primary emissions using the procedures and methods in 40 CFR 63.847 and 63.849. The permittee shall combine the results of secondary PM average emissions with the PM results for the primary control system and divide total emissions by total aluminum production. [40 CFR 63.846(b)(3)]

Compliance Demonstration Method:

1. The permittee shall determine compliance with the applicable TF, POM, or PM emission limits using the following equations and procedures: [40 CFR 63.847(e)]
 - A. Compute the emission rate (E_p) of TF, POM, or PM from each potline using the following equation: [40 CFR 63.847(e)(1)]

$$E_p = \frac{[(C_{s1} \times Q_{sd})_1 + (C_{s2} \times Q_{sd})_2]}{(P \times K)}$$

Where:

 - E_p = emission rate of TF, POM, or PM from a potline, lb/ton (kg/Mg);
 - C_{s1} = concentration of TF, POM, or PM from the primary control system, mg/dscf (mg/dscm);
 - Q_{sd} = volumetric flow rate of effluent gas corresponding to the appropriate subscript location, dscf/hr (dscm/hr);
 - C_{s2} = concentration of TF, POM, or PM as measured for roof monitor emissions, mg/dscf (mg/dscm);
 - P = aluminum production rate, ton/hr (Mg/hr);
 - K = conversion factor, 453,600 mg/lb (106 mg/kg) for TF, POM, and PM;
 - $_1$ = subscript for primary control system effluent gas; and
 - $_2$ = subscript for secondary control system or roof monitor effluent gas.
 - B. Determine the weight of the aluminum tapped from the potline using the monitoring devices required in 40 CFR 63.848(j). [40 CFR 63.847(e)(5)]
 - C. Determine the aluminum production rate (P) by dividing the number of hours in

SECTION B - EMISSION POINTS, EMISSION UNITS, APPLICABLE REGULATIONS, AND OPERATING CONDITIONS (CONTINUED)

the calendar month into the weight of aluminum tapped from the potline during the calendar month that includes the three runs of a performance test. [40 CFR 63.847(e)(6)]

2. **Carbonyl sulfide (COS) emissions.** The permittee shall calculate, for each potline, the emission rate of COS for each calendar month of operation using the following equation: [40 CFR 63.847(j)]

$$E_{COS} = [K] \times \left[\frac{Y}{Z} \right] \times [S]$$

Where:

- E_{COS} = the emission rate of COS during the calendar month, pounds per ton of aluminum produced;
- K = factor accounting for molecular weights and conversion of sulfur to carbonyl sulfide = 234;
- Y = the mass of anode consumed in the potline during the calendar month, tons;
- Z = the mass of aluminum produced by the potline during the calendar month, tons; and
- S = the weighted average fraction of sulfur in the anode coke consumed in the production of aluminum during the calendar month (e.g., if the weighted average sulfur content of the anode coke consumed during the calendar month was 2.5 percent, then $S = 0.025$). The weight of anode coke used during the calendar month of each different concentration of sulfur is used to calculate the overall weighted average fraction of sulfur.

Compliance is demonstrated if the calculated value of E_{COS} is less than the applicable standard for COS emissions in 40 CFR 63.843(e) and 63.844(e).

- c. **Standard for Visible Emissions.** The permittee shall not cause to be discharged into the atmosphere: [401 KAR 61:165, Section 3]
- From any potroom roof monitor any gases which exhibit ten (10) percent opacity or greater during normal potroom operation except start-up cells; [401 KAR 61:165, Section 3(1)]
 - From any potroom roof monitor section directly above sick cells or start-up cells any gases which exhibit forty (40) percent opacity or greater; [401 KAR 61:165, Section 3(2)]
 - From any primary aluminum reduction plant other than a dry scrubbing plant primary control system any gases which exhibit twenty-five (25) percent opacity or greater. [401 KAR 61:165, Section 3(4)]
- d. **Standard for Fluorides.** The permittee shall not cause to be discharged into the atmosphere: [401 KAR 61:165, Section 4]
- Through each potroom roof monitor: gases which contain gaseous fluorides in excess of 3.25 lb/hr. [401 KAR 61:165, Section 4(1)(b)]
 - From any primary control system: gases which contain gaseous fluorides in excess of one (1.0) lbs/ton of aluminum produced. The minimum stack height for the primary control system shall be 400 feet. [401 KAR 61:165, Section 4(1)(c)]

SECTION B - EMISSION POINTS, EMISSION UNITS, APPLICABLE REGULATIONS, AND OPERATING CONDITIONS (CONTINUED)

- e. In the event of a recorded violation of the fluoride standard prescribed in 401 KAR 53:010, the Cabinet shall require that remedial measures be initiated from the source(s) responsible for causing said violation. [401 KAR 61:165, Section 4(2)]

Compliance Demonstration:

In the event of a recorded violation of the fluoride standard (either HF or TF) prescribed in 401 KAR 53:010, the permittee shall initiate remedial measures for the source(s) responsible for causing the violation. A record of these immediate remedial measures and a corrective action plan for future corrective action and remediation must be submitted to the Division with the next quarterly report required in **6. Specific Reporting Requirements (n)**.

- f. ***Standard for Particulate Emissions.*** The permittee shall not cause to be discharged into the atmosphere from the primary control system stack any gases which contain particulate emissions in excess of 0.010 gr/scf. Addition of dilution air shall not constitute compliance. [401 KAR 61:165, Section 5]
- g. The permittee shall not allow emissions to exceed any of the following limits, based on a monthly average: [401 KAR 51:017]

Emission Point	PM (lb/hr)	PM₁₀ (lb/hr)	PM_{2.5} (lb/hr)	SO₂ (lb/hr)	CO (lb/hr)	F (lb/hr)	HF (lb/hr)
84b (Combined Main Stack)	138.33	80.234	--	--	6778	11.751	27.700
85 (Potline #1 Roof Monitors)	20.614	11.956	--	--	89.184	3.253	4.773
86 (Potline #2 Roof Monitors)	20.614	11.956	--	--	89.184	3.253	4.773
87 (Potline #3 Roof Monitors)	20.614	11.956	--	--	89.184	3.253	4.773
88 (Potline #4 Roof Monitors)	20.614	11.956	--	--	89.184	3.253	4.773
Combined (84b+85+86+87 +88)	220.786	128.1	128.1	898.97	7134	24.763	46.792

- h. The permittee shall not allow the combined emissions of VOC from potlines 1-4 (combined roof monitors and control stack) to exceed 30.252 lbs/hr, based on a monthly average. [To preclude 401 KAR 51:017, Sections 8 to 16]

SECTION B - EMISSION POINTS, EMISSION UNITS, APPLICABLE REGULATIONS, AND OPERATING CONDITIONS (CONTINUED)**Compliance Demonstration Method:**

Compliance with the emission limitations for PM, PM₁₀, PM_{2.5}, SO₂, CO, F, HF, and VOC shall be demonstrated through the use of the following equation:

$$E_p = \frac{[P \times EF_c]}{H}$$

Where:

E_p = Emission rate of PM, PM₁₀, PM_{2.5}, SO₂, CO, F, HF, or VOC in lb/hr

P = Monthly aluminum production rate in tons/month; which is the sum of daily totals

EF_c = Combined* emission factor for PM, PM₁₀, PM_{2.5}, SO₂, CO, F, HF, or VOC calculated using the results of the most recent performance test or approved in the most recent permit revision (lb/ton)

H = Monthly hours of operation

*Combined emissions include emissions from stacks and roof monitors.

Also refer to 3. **Testing Requirements** (s), 4. **Specific Monitoring Requirements**, and 5. **Specific Recordkeeping Requirements**.

- i. For NO_x emission limitations (stack and roof monitors), refer to **SECTION D**. Also refer to 3. **Testing Requirements** (s). [To preclude 401 KAR 51:017, Sections 8 to 16]

3. Testing Requirements:

- a. ***Test plan.*** The permittee shall prepare a site-specific test plan prior to the initial performance test according to the requirements of 40 CFR 63.7(c). The test plan shall include procedures for conducting the initial performance test and for subsequent performance tests required in 40 CFR 63.848 for emission monitoring. In addition to the information required by 40 CFR 63.7, the test plan shall include: [40 CFR 63.847(b)]
 - i. Procedures to ensure a minimum of three runs are performed annually for the primary control system for each source; [40 CFR 63.847(b)(1)]
 - ii. Procedures for establishing the frequency of testing to ensure that at least one run is performed before the 15th of the month, at least one run is performed after the 15th of the month, and that there are at least 6 days between two of the runs during the month, or that secondary emissions are measured according to an alternate schedule satisfactory to the Division. [40 CFR 63.847(b)(8)]
- b. Following approval of the site-specific test plan, the permittee shall conduct a performance test to demonstrate initial compliance according to the procedures in 40 CFR 63.847(d). If a performance test has been conducted on the primary control system for the potlines within the 12 months prior to the compliance date, the results of that performance test may be used to demonstrate initial compliance. The permittee shall conduct the performance test: [40 CFR 63.847(c)]
 - i. During the first month following: [40 CFR 63.847(c)(1)]
 - 1) October 7, 1999 for TF testing. [40 CFR 63.847(a)(1)]
 - 2) October 17, 2016 for calculation of COS emissions pursuant to 40 CFR 63.847(j). [40 CFR 63.847(a)(2)(ii)]
 - 3) October 16, 2017 for POM and PM testing. [40 CFR 63.847(a)(2)(iii)]

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- ii. For an existing potline that was shut down at the time compliance would have otherwise been required and is subsequently restarted, by the 180th day following startup for a potline or potroom group. The 180-day period starts when the first pot in a potline or potroom group is energized. [40 CFR 63.847(c)(3)(i)]
- c. ***Performance test requirements.*** The initial performance test and all subsequent performance tests shall be conducted in accordance with the applicable requirements of the general provisions in 40 CFR 63, Subpart A, the approved test plan, and the procedures in 40 CFR 63.847. Performance tests shall be conducted under such conditions as the Administrator specifies to the permittee based on representative performance of the affected source for the period being tested. Upon request, the permittee shall make available to the Administrator such records as may be necessary to determine the conditions of performance tests. [40 CFR 63.847(d)]
- d. ***TF, POM and PM emissions from potlines.*** For each potline, the permittee shall measure and record the emission rates of TF, POM and PM exiting the outlet of the primary control system and the rate of secondary emissions exiting through each roof monitor. Using the equation in 40 CFR 63.847(e)(1), the permittee shall compute and record the average of at least three runs semiannually for secondary emissions and at least three runs each year for the primary control system to determine compliance with the applicable emission limit. Compliance is demonstrated when the emission rates of TF, POM, and PM are equal to or less than the applicable emission limits in 40 CFR 63.843, 40 CFR 63.844, or 40 CFR 63.846. [40 CFR 63.847(d)(1)]
- e. ***Previous control device tests.*** If the permittee has performed more than one test of primary emission control device(s) for a potline during the previous consecutive 12 months, the average of all runs performed in the previous 12-month period shall be used to determine the contribution from the primary emission control system. [40 CFR 63.847(d)(3)]
- f. ***TF and PM emissions from potlines.*** Using the procedures in 40 CFR 63.847 and in the approved test plan, the permittee shall monitor emissions of TF and PM from each potline by conducting annual performance tests on the primary control system and semiannual performance tests on the secondary emissions. The permittee shall compute and record the average semiannually from at least three runs for secondary emissions and the average from at least three runs for the primary control system to determine compliance with the applicable emission limit. The permittee shall include all valid runs in the semiannual average. The duration of each run for secondary emissions shall represent a complete operating cycle. Potline emissions shall be recorded as the sum of the average of at least three runs from the primary control system and the average of at least three runs from the roof monitor or secondary emissions control device. [40 CFR 63.848(a)]
- g. ***POM emissions from potlines.*** Using the procedures in 40 CFR 63.847 and in the approved test plan, the permittee shall monitor emissions of POM from each potline stack annually and secondary potline POM emissions semiannually. The permittee shall

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compute and record the semiannual average from at least three runs for secondary emissions and at least three runs for the primary control systems to determine compliance with the applicable emission limit. The permittee shall include all valid runs in the semiannual average. The duration of each run for secondary emissions shall represent a complete operating cycle. The primary control system shall be sampled over an 8-hour period, unless site-specific factors dictate an alternative sampling time subject to the approval of the Division. Potline emissions shall be recorded as the sum of the average of at least three runs from the primary control system and the average of at least three runs from the roof monitor or secondary emissions control device. [40 CFR 63.848(b)]

- h. ***Similar potlines.*** As an alternative to semiannual monitoring of TF, POM or PM secondary emissions from each potline using the methods in 40 CFR 63.849, the permittee may perform semiannual monitoring of TF, POM or PM secondary emissions from one potline using the test methods in 40 CFR 63.849(a) or (b) to represent the performance of similar potline(s). The similar potline(s) shall be monitored using an alternative method that meets the requirements of 40 CFR 63.848(d)(1) through (7). Two or more potlines are similar if the permittee demonstrates that their structure, operability, type of emissions, volume of emissions and concentration of emissions are substantially equivalent. [40 CFR 63.848(d)]
 - i. To demonstrate (to the satisfaction of the Division) that the level of emission control performance is the same or better, the permittee shall perform an emission test using an alternative monitoring procedure for the similar potline simultaneously with an emission test using the applicable test methods. The results of the emission test using the applicable test methods shall be in compliance with the applicable emission limit for existing or new potlines in 40 CFR 63.843 or 40 CFR 63.844. An alternative method: [40 CFR 63.848(d)(1)]
 - 1) For TF emissions, shall account for or include gaseous fluoride and cannot be based on measurement of particulate matter or particulate fluoride alone; and [40 CFR 63.848(d)(1)(i)]
 - 2) For TF, POM and PM emissions, shall meet or exceed Method 14 criteria. [40 CFR 63.848(d)(1)(ii)]
 - ii. An HF continuous emission monitoring system is an approved alternative for the monitoring of TF secondary emissions. [40 CFR 63.848(d)(2)]
 - iii. If the permittee elects to use an alternative monitoring procedure, the permittee shall establish an alternative emission limit based on at least nine simultaneous runs using the applicable test methods and the alternative monitoring method. All runs shall represent a full process cycle. [40 CFR 63.848(d)(3)]
 - iv. The permittee shall derive an alternative emission limit for the HF continuous emission monitor or an alternative method using either of the following procedures: [40 CFR 63.848(d)(4)]
 - 1) Use the highest value from the alternative method associated with a simultaneous run by the applicable test method that does not exceed the applicable emission limit; or [40 CFR 63.848(d)(4)(i)]
 - 2) Correlate the results of the two methods (the applicable test method results and the alternative monitoring method results) and establish an emission limit for the

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alternative monitoring system that corresponds to the applicable emission limit.
[40 CFR 63.848(d)(4)(ii)]

- v. The permittee shall submit the results required in 40 CFR 63.848(d)(4) and all supporting documentation to the Division for review and approval. [40 CFR 63.848(d)(5)]
- vi. The Division will review and approve or disapprove the request for an alternative method and alternative emission limit. The criterion for approval shall be a demonstration (to the satisfaction of the Division) that the alternative method and alternative emission limit achieve a level of emission control that is the same as or better than the level that would have otherwise been achieved by the applicable method and emission limit. [40 CFR 63.848(d)(6)]
- vii. If the alternative method is approved by the Division, the permittee shall perform semiannual emission monitoring using the approved alternative monitoring procedure to demonstrate compliance with the alternative emission limit for each similar potline. [40 CFR 63.848(d)(7)]
- i. The permittee shall use the following reference methods to determine compliance with the applicable emission limits for TF, POM, PM, and conduct visible emissions observations: [40 CFR 63.849(a)]
 - i. Method 1 in 40 CFR 60, Appendix A for sample and velocity traverses; [40 CFR 63.849(a)(1)]
 - ii. Method 2 in 40 CFR 60, Appendix A for velocity and volumetric flow rate; [40 CFR 63.849(a)(2)]
 - iii. Method 3 in 40 CFR 60, Appendix A for gas analysis; [40 CFR 63.849(a)(3)]
 - iv. Method 13A or Method 13B in 40 CFR 60, Appendix A, or an approved alternative, for the concentration of TF where stack or duct emissions are sampled; [40 CFR 63.849(a)(4)]
 - v. Method 13A or Method 13B and Method 14 or Method 14A in 40 CFR 60, Appendix A or an approved alternative method for the concentration of TF where emissions are sampled from roof monitors not employing wet roof scrubbers; [40 CFR 63.849(a)(5)]
 - vi. Method 315 in 40 CFR 63, Appendix A or an approved alternative method for the concentration of POM where stack or duct emissions are sampled; [40 CFR 63.849(a)(6)]
 - vii. Method 315 in 40 CFR 63, Appendix A and Method 14 or 14A in 40 CFR 60, Appendix A or an approved alternative method for the concentration of POM where emissions are sampled from roof monitors not employing wet roof scrubbers. Method 315 need not be set up as required in the method. Instead, when using Method 14A, replace the Method 14A monitor cassette filter with the filter specified by Method 315. Recover and analyze the filter according to Method 315. When using Method 14, test at ambient conditions, do not heat the filter and probe, and do not analyze the back half of the sampling train; [40 CFR 63.849(a)(7)]
 - viii. Method 5 in 40 CFR 60, Appendix A or an approved alternative method for the concentration of PM where stack or duct emissions are sampled; [40 CFR 63.849(a)(8)]

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- ix. Method 17 and Method 14 or Method 14A in 40 CFR 60, Appendix A or an approved alternative method for the concentration of PM where emissions are sampled from roof monitors not employing wet roof scrubbers. Method 17 need not be set up as required in the method. Instead, when using Method 14A, replace the Method 14A monitor cassette filter with the filter specified by Method 17. Recover and analyze the filter according to Method 17. When using Method 14, test at ambient conditions, do not heat the filter and probe, and do not analyze the back half of the sampling train; [40 CFR 63.849(a)(9)]
- x. Method 22 in 40 CFR 60, Appendix A or an approved alternative method for determination of visual emissions; [40 CFR 63.849(a)(12)]
- j. Except as provided in 40 CFR 63.845(g)(1), references to “potroom” or “potroom group” in Method 14 in 40 CFR 60, Appendix A shall be interpreted as “potline” for the purposes of 40 CFR 63, Subpart LL. [40 CFR 63.849(c)]
- k. For sampling using Method 14 in 40 CFR 60, Appendix A, the permittee shall install one Method 14 manifold per potline in a potroom that is representative of the entire potline, and this manifold shall meet the installation requirements specified in 40 CFR 60, Appendix A, Method 14, Section 2.2.1. [40 CFR 63.849(d)]
- l. The permittee may use an alternative test method for TF or POM emissions providing: [40 CFR 63.849(e)]
 - i. The permittee has already demonstrated the equivalency of the alternative method for a specific plant and has received previous approval from the U.S. EPA or the Division for TF or POM measurements using the alternative method; or [40 CFR 63.849(e)(1)]
 - ii. The permittee demonstrates to the satisfaction of the Division that the results from the alternative method meet the criteria specified in 40 CFR 63.848(d)(1) and (d)(3) through (d)(6). The results from the alternative method shall be based on simultaneous sampling using the alternative method and the following reference methods: [40 CFR 63.849(e)(2)]
 - 1) For TF, Methods 13 and 14 or Method 14A in 40 CFR 60, Appendix A; or [40 CFR 63.849(e)(2)(i)]
 - 2) For POM, Method 315 in 40 CFR 63, Appendix A and Method 14 in 40 CFR 60, Appendix A. [40 CFR 63.849(e)(2)(ii)]
- m. The permittee shall use either ASTM D4239-14e1 or ASTM D6376-10 (incorporated by reference; see 40 CFR 63.14) for determination of the sulfur content in anode coke shipments to determine compliance with the applicable emission limit for COS emissions. [40 CFR 63.849(f)]
- n. Reference methods as defined in Appendix A of 40 CFR 60 or as otherwise specified, filed by reference in 401 KAR 50:015, except as provided for in 401 KAR 50:045, shall be used to determine compliance with the standards prescribed in 401 KAR 61:165, Sections 3, 4 and 5 as follows: [401 KAR 61:165, Section 7(1)]
 - i. For sampling emissions from stacks: [401 KAR 61:165, Section 7(1)(a)]

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- 1) Reference Method 13A or 13B for the concentration of total fluoride and the associated moisture content; [401 KAR 61:165, Section 7(1)(a)(1)]
 - 2) Reference Method 1 for sample and velocity traverses; [401 KAR 61:165, Section 7(1)(a)(2)]
 - 3) Reference Method 2 for velocity and volumetric flow rate; [401 KAR 61:165, Section 7(1)(a)(3)]
 - 4) Reference Method 3 for gas analysis; and [401 KAR 61:165, Section 7(1)(a)(4)]
 - 5) Reference Method 5 for particulate emissions. [401 KAR 61:165, Section 7(1)(a)(5)]
- ii. For sampling emissions from roof monitors not employing stacks or pollutant collection systems: [401 KAR 61:165, Section 7(1)(b)]
 - 1) Reference Method 14 and Kentucky Method 130 for the concentration of gaseous fluorides and associated moisture content; [401 KAR 61:165, Section 7(1)(b)(1)]
 - 2) Reference Method 1 for sample and velocity traverses; [401 KAR 61:165, Section 7(1)(b)(2)]
 - 3) Reference Method 2 and Reference Method 14 for velocity and volumetric flow rate; and [401 KAR 61:165, Section 7(1)(b)(3)]
 - 4) Reference Method 3 for gas analysis. [401 KAR 61:165, Section 7(1)(b)(4)]
 - iii. For opacity determination: Reference Method 9. [401 KAR 61:165, Section 7(1)(c)]
- o. For Reference Method 13A or 13B, 14, and Kentucky Method 130, the sampling time for each run shall be at least eight (8) hours for any potroom sample, and the minimum sample volume shall be six and eight-tenths (6.8) dscm (240 dscf) for any potroom sample except that shorter sampling times or smaller volumes, when necessitated by process variables or other factors, may be approved by the cabinet. [401 KAR 61:165, Section 7(2)]
 - p. The air pollution control system for each affected facility shall be constructed so that volumetric flow rates and total fluoride emissions can be accurately determined using applicable methods specified under 401 KAR 61:165, Section 7(1). [401 KAR 61:165, Section 7(3)]
 - q. The rate of aluminum production is determined by dividing 720 hours into the weight of aluminum tapped from the affected facility during a period of thirty (30) days prior to and including the final run of a performance test. [401 KAR 61:165, Section 7(4)]
 - r. For each run for any plant with an emission limitation expressed in lbs/ton of aluminum produced, potroom group emissions expressed in kg/metric ton of aluminum produced shall be determined using the equation in 401 KAR 61:165, Appendix A. [401 KAR 61:165, Section 7(5)]
 - s. The following compliance tests shall be performed to determine compliance with all emission limitations listed above and to develop emission factors: [401 KAR 51:017]
 - i. The permittee shall conduct a performance test for particulate emissions (filterable PM, PM₁₀, PM_{2.5} and Condensable Particulate) once every 12 months during the life of permit V-24-010. The tests shall be performed according to Reference Method 5

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- and Reference Method 201A/202 for particulate emissions (filterable PM, PM₁₀, PM_{2.5} and Condensable Particulate). Where similar potlines exist, the permittee may perform the roof monitor sampling on a representative potline. These tests can be performed simultaneously with the testing required by 40 CFR 63, Subpart LL.
- ii. The permittee shall perform testing according to Reference Method 6 for sulfur dioxide (SO₂) emissions once every 12 months, no later than 180 days after issuance of permit V-24-010 or startup of each potline, whichever comes later. Where similar potlines exist, the permittee may perform the roof monitor sampling on a representative potline.
 - iii. The permittee shall perform testing according to Reference Method 25 or 25A for VOC emissions once every 12 months, no later than 180 days after issuance of permit V-24-010 or startup of each potline, whichever comes later. Where similar potlines exist, the permittee may perform the roof monitor sampling on a representative potline.
 - iv. The permittee shall perform testing according to Reference Method 7 or 7E for NO_x emissions once within the 5 year permit term of permit V-24-010. Where similar potlines exist, the permittee may perform the roof monitor sampling a representative potline.
 - v. The permittee shall perform testing according to Reference Method 10 for CO emissions once every 12 months, no later than 180 days after issuance of permit V-24-010 or startup of each potline, whichever comes later. Where similar potlines exist, the permittee may perform the roof monitor sampling on a representative potline.
- t. For SO₂, VOC, and CO, the permittee shall perform one annual test on those pollutants that were less than or equal to 75% of the limitations for SO₂, VOC, and CO in **2. Emission Limitations** (g) and (h). If the results of the annual test remain less than or equal to 75% of the permit limit, then no additional testing of those pollutants is required for the duration of the current permit. If the result(s) of testing are not less than or equal to 75% of the permit limit or if no testing was performed on a pollutant during the previous permit period, then annual testing is required until two consecutive annual tests demonstrate that the emissions of SO₂, VOC, and CO, are less than or equal to 75% of the standards specified herein. No additional testing for SO₂, VOC, and CO shall be required during the term of this permit once two consecutive annual tests have met these criteria.
- u. If the permittee chooses to perform representative sampling on a potline roof monitor in lieu of performing testing on each potline, the permittee shall ensure that each potline is equipped for roof monitor sampling such that different potlines can be sampled in future tests.
- v. Pursuant to 401 KAR 61:005, Section 2(2) and 401 KAR 50:045, Section 1, performance testing using the reference methods specified in 401 KAR 50:015 shall be conducted if required by the Cabinet.

SECTION B - EMISSION POINTS, EMISSION UNITS, APPLICABLE REGULATIONS, AND OPERATING CONDITIONS (CONTINUED)**4. Specific Monitoring Requirements:**

- a. ***Selection of monitoring parameters.*** The permittee shall determine the operating limits and monitoring frequency for each control device that is to be monitored as required in 40 CFR 63.848(f). [40 CFR 63.847(h)]
 - i. For potlines, the permittee shall determine upper and/or lower operating limits, as appropriate, for each monitoring device for the emission control system from the values recorded during each of the runs performed during the initial performance test and from historical data from previous performance tests conducted by the methods specified in 40 CFR 63, Subpart LL. [40 CFR 63.847(h)(1)]
 - ii. The permittee may redetermine the upper and/or lower operating limits, as appropriate, based on historical data or other information and submit an application to the Division to change the applicable limit(s). The redetermined limits shall become effective upon approval by the Division. [40 CFR 63.847(h)(3)]
- b. ***Weight of aluminum.*** The permittee shall install, operate, and maintain a monitoring device to determine the daily weight of aluminum produced. [40 CFR 63.848(j)]
- c. The permittee shall install, calibrate, maintain, and operate monitoring devices which can be used to determine daily the weight of the aluminum produced. The weighing devices shall have an accuracy of plus or minus five (5) percent over their operating range. [401 KAR 61:165, Section 6(1)]
- d. The permittee shall install, use, and maintain ambient air monitoring equipment in accordance with such methods as the cabinet shall prescribe; establish and maintain records of same; and make periodic emission reports at intervals prescribed by the cabinet. [401 KAR 61:165, Section 6(3)]
- e. The permittee shall perform a qualitative visual observation of the opacity of emissions at each stack twice daily and at each roof monitor no less than weekly while the affected facility is operating. If visible emissions from a stack or roof monitor are observed (not including condensed water in the plume), the permittee shall determine the opacity using U.S. EPA Reference Method 9. In lieu of determining the opacity using U.S. EPA Reference Method 9, the permittee shall immediately perform a corrective action which results in no visible emissions (not including condensed water in the plume). The Method 22 observations performed for 40 CFR 63, Subpart LL may also be used to meet the qualitative requirement for the stack. [401 KAR 52:020, Section 10]
- f. The permittee shall continue to operate and maintain ambient air monitoring equipment for the detection of fluorides. This equipment shall be located at sites specified by the Division. [401 KAR 52:020, Section 10]
- g. To provide reasonable assurance that the particulate matter (PM, PM₁₀, PM_{2.5}) emission limitations are being met, the permittee shall monitor the monthly and 12-month rolling amount and type of process weight added to each emissions unit and the operating parameters of each control device. [401 KAR 52:020, Section 10]

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- h. The permittee shall monitor the monthly and 12-month rolling individual and combined total emissions of PM, PM₁₀, PM_{2.5}, SO₂, CO, F, HF, NO_x, and VOC. [401 KAR 52:020, Section 10]
- i. The permittee shall install, operate, calibrate, and maintain a continuous monitoring system for the control equipment according to the approved parametric monitoring plan, which is located in Appendix B to the permit, as provided in 40 CFR 63.848(f). [401 KAR 52:020, Section 10]
- j. Refer to **SECTION F** for general monitoring requirements.
- k. For Potlines #1-4, refer to Appendix A for CAM requirements pursuant to 40 CFR 64.

5. Specific Recordkeeping Requirements:

- a. The permittee shall maintain files of all information (including all reports and notifications) required by 40 CFR 63.10(b) and by 40 CFR 63, Subpart LL. [40 CFR 63.850(e)]
- b. The permittee shall retain each record for at least 5 years following the date of each occurrence, measurement, maintenance, corrective action, report, or record. The most recent 2 years of records shall be retained at the facility. The remaining 3 years of records may be retained offsite; [40 CFR 63.850(e)(1)]
- c. The permittee may retain records on microfilm, on a computer, on computer disks, on magnetic tape, or on microfiche; [40 CFR 63.850(e)(2)]
- d. The permittee may report required information on paper or on a labeled computer disc using commonly available and compatible computer software; and [40 CFR 63.850(e)(3)]
- e. In addition to the general records required by 40 CFR 63.10(b), the permittee shall maintain records of the following information: [40 CFR 63.850(e)(4)]
 - i. Daily production rate of aluminum; [40 CFR 63.850(e)(4)(i)]
 - ii. Records supporting the monitoring of similar potlines demonstrating that the performance of similar potlines is the same as or better than that of potlines sampled by manual methods; [40 CFR 63.850(e)(4)(vi)]
 - iii. Records supporting a request for reduced sampling of potlines; [40 CFR 63.850(e)(4)(vii)]
 - iv. The current implementation plan for emission averaging and any subsequent amendments; [40 CFR 63.850(e)(4)(ix)]
 - v. Records, such as a checklist or the equivalent, demonstrating that the daily visual inspection of the exhaust stack for each control device has been performed as required in 40 CFR 63.848(g), including the results of each inspection; [40 CFR 63.850(e)(4)(xi)]
 - vi. For a potline equipped with an HF continuous emission monitor, records of information and data required by 40 CFR 63.10(c); [40 CFR 63.850(e)(4)(xii)]

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- vii. Records documenting the corrective actions taken when the limit(s) for an operating parameter established under 40 CFR 63.847(h) were exceeded or when visible emissions indicating abnormal operation were observed from a control device stack during a daily inspection required under 40 CFR 63.848(g). [40 CFR 63.850(e)(4)(xiii)]
 - viii. Records documenting any POM data that are invalidated due to the installation and startup of a cathode; [40 CFR 63.850(e)(4)(xiv)]
 - ix. Records documenting the portion of TF that is measured as particulate matter and the portion that is measured as gaseous when the particulate and gaseous fractions are quantified separately using an approved test method; [40 CFR 63.850(e)(4)(xv)]
 - x. Records of the occurrence and duration of each malfunction of operation (i.e. process equipment) or the air pollution control equipment and monitoring equipment; and [40 CFR 63.850(e)(4)(xvi)]
 - xi. Records of actions taken during periods of malfunction to minimize emissions in accordance with 40 CFR 63.843(f) and 63.844(f), including corrective actions to restore malfunctioning process and air pollution control and monitoring equipment to its normal or usual manner of operation. [40 CFR 63.850(e)(4)(xvii)]
- f. The permittee shall maintain a record of daily production rates of aluminum, raw material feed rates, and cell or potline voltages. [401 KAR 61:165, Section 6(2)]
- g. Records of the installation, use, and maintenance of the ambient air monitoring equipment required by 401 KAR 61:165. [401 KAR 61:165, Section 6(3)]
- h. The permittee shall maintain records of the following: [401 KAR 52:020, Section 10]
- i. 12-month rolling throughput for each potline;
 - ii. A log of the qualitative visual observations made as specified in **4. Specific Monitoring Requirements** including the date, time, initials of observer, whether any emissions were observed (yes/no), and any U.S. EPA Reference Method 9 readings taken;
 - iii. Monthly hours of operation;
 - iv. Monthly anode consumption in potline 1-4;
 - v. Records of sulfur contents of coal and pitch from standard ASTM method, an approved alternative method, or by vendor Certificate of Analysis per barge shipment basis;
 - vi. Records of ambient air monitoring results for fluorides;
 - vii. Records of calibration for all monitoring devices;
 - viii. Records of the quarterly ambient monitoring data reports required by **6. Specific Reporting Requirements (n)**.
 - ix. Monthly and 12-month rolling individual and combined total emissions of PM, PM₁₀, PM_{2.5}, SO₂, CO, F, HF, NO_x, and VOC
 - x. Records of violations of the ambient air standards for total and gaseous fluorides as prescribed in 401 KAR 53:010. [401 KAR 61:165, Section 4(2)]
- i. The permittee shall record the occurrence, duration, cause and any corrective action taken for any incident or malfunction that occurs that causes or might cause an exceedance of

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the particulate emission or opacity standard when an emission unit is in operation. [401 KAR 52:020, Section 10]

- j. The permittee shall maintain records of the current parametric monitoring plan submitted to the Division in accordance with 40 CFR 63.848(f). [401 KAR 52:020, Section 10]
- k. Refer to **SECTION F** for general recordkeeping requirements.
- l. For Potlines #1-4:
 - i. The permittee shall comply with the recordkeeping requirements specified in **SECTION F**. The permittee shall maintain records of monitoring data, monitor performance data, corrective actions taken, any written quality improvement plan required pursuant to 40 CFR 64.8 and any activities undertaken to implement a quality improvement plan, and other supporting information required to be maintained under 40 CFR 64 (such as data used to document the adequacy of monitoring, or records of monitoring maintenance or corrective actions). [40 CFR 64.9(b)(1)]
 - ii. Instead of paper records, the permittee may maintain records on alternative media, such as microfilm, computer files, magnetic tape disks, or microfiche, provided that the use of such alternative media allows for expeditious inspection and review, and does not conflict with other applicable recordkeeping requirements. [40 CFR 64.9(b)(1)]

6. Specific Reporting Requirements:

- a. If the permittee of an existing potroom group proposes to replace components, and the fixed capital cost of the new components exceeds 50 percent of the fixed capital cost that would be required to construct a comparable entirely new potroom group, the permittee shall notify the Division of the proposed replacements. The notice must be postmarked 60 days (or as soon as practicable) before construction of the replacements is commenced and must include the following information: [40 CFR 63.845(a)(2)(ii)]
 - i. Name and address of the owner or operator; [40 CFR 63.845(a)(2)(ii)(A)]
 - ii. The location of the existing potroom group; [40 CFR 63.845(a)(2)(ii)(B)]
 - iii. A brief description of the existing potroom group and the components that are to be replaced; [40 CFR 63.845(a)(2)(ii)(C)]
 - iv. A description of the existing air pollution control equipment and the proposed air pollution control equipment; [40 CFR 63.845(a)(2)(ii)(D)]
 - v. An estimate of the fixed capital cost of the replacements and of constructing a comparable entirely new potroom group; [40 CFR 63.845(a)(2)(ii)(E)]
 - vi. The estimated life of the existing potroom group after the replacements; and [40 CFR 63.845(a)(2)(ii)(F)]
 - vii. A discussion of any economic or technical limitations the potroom group may have in complying with the applicable standards of performance after the proposed replacements. [40 CFR 63.845(a)(2)(ii)(G)]
- b. The Division will determine, within 30 days of the receipt of the notice required by 40 CFR 63.845(a)(2)(ii) and any additional information the Division may reasonably

SECTION B - EMISSION POINTS, EMISSION UNITS, APPLICABLE REGULATIONS, AND OPERATING CONDITIONS (CONTINUED)

require, whether the proposed replacement constitutes a reconstructed potroom group. [40 CFR 63.845(a)(2)(iii)]

- c. The Division's determination under 40 CFR 63.845(a)(2)(iii) shall be based on: [40 CFR 63.845(a)(2)(iv)]
 - i. The fixed capital cost of the replacements in comparison to the fixed capital cost that would be required to construct a comparable entirely new potroom group; [40 CFR 63.845(a)(2)(iv)(A)]
 - ii. The estimated life of the potroom group after the replacements compared to the life of a comparable entirely new potroom group; [40 CFR 63.845(a)(2)(iv)(B)]
 - iii. The extent to which the components being replaced cause or contribute to the emissions from the potroom group; and [40 CFR 63.845(a)(2)(iv)(C)]
 - iv. Any economic or technical limitations on compliance with applicable standards of performance that are inherent in the proposed replacements. [40 CFR 63.845(a)(2)(iv)(D)]
- d. **Implementation plan.** If the permittee chooses to average emissions, the permittee shall develop and submit an implementation plan for emission averaging to the Division for review and approval according to the following procedures and requirements: [40 CFR 63.846(d)]
 - i. **Deadlines.** The permittee shall submit the implementation plan no later than 6 months before the date that the facility intends to comply with the emission averaging limits. [40 CFR 63.846(d)(1)]
 - ii. **Contents.** The permittee shall include the following information in the implementation plan or in the application for an operating permit for all emission sources to be included in an emissions average: [40 CFR 63.846(d)(2)]
 - 1) The identification of all emission sources (potlines) in the average; [40 CFR 63.846(d)(2)(i)]
 - 2) The assigned TF, POM and/or PM emission limit for each averaging group of potlines; [40 CFR 63.846(d)(2)(ii)]
 - 3) The specific control technologies or pollution prevention measures to be used for each emission source in the averaging group and the date of its installation or application. If the pollution prevention measures reduce or eliminate emissions from multiple sources, the permittee shall identify each source; [40 CFR 63.846(d)(2)(iii)]
 - 4) The test plan for the measurement of TF, POM and/or PM emissions in accordance with the requirements in 40 CFR 63.847(b); [40 CFR 63.846(d)(2)(iv)]
 - 5) The operating parameters to be monitored for each control system or device and a description of how the operating limits will be determined; [40 CFR 63.846(d)(2)(v)]
 - 6) If the permittee requests to monitor an alternative operating parameter pursuant to 40 CFR 63.848(l): [40 CFR 63.846(d)(2)(vi)]
 - A. A description of the parameter(s) to be monitored and an explanation of the criteria used to select the parameter(s); and [40 CFR 63.846(d)(2)(vi)(A)]

SECTION B - EMISSION POINTS, EMISSION UNITS, APPLICABLE REGULATIONS, AND OPERATING CONDITIONS (CONTINUED)

- B. A description of the methods and procedures that will be used to demonstrate that the parameter indicates proper operation of the control device; the frequency and content of monitoring, reporting, and recordkeeping requirements; and a demonstration, to the satisfaction of the Division, that the proposed monitoring frequency is sufficient to represent control device operating conditions; and [40 CFR 63.846(d)(2)(vi)(B)]
- 7) A demonstration that compliance with each of the applicable emission limit(s) will be achieved under representative operating conditions. [40 CFR 63.846(d)(2)(vii)]
- iii. **Approval criteria.** Upon receipt, the Division will review and approve or disapprove the plan or permit application according to the following criteria: [40 CFR 63.846(d)(3)]
 - 1) Whether the content of the plan includes all of the information specified in 40 CFR 63.846(d)(2); and [40 CFR 63.846(d)(3)(i)]
 - 2) Whether the plan or permit application presents sufficient information to determine that compliance will be achieved and maintained. [40 CFR 63.846(d)(3)(ii)]
- iv. **Prohibitions.** The Division will not approve an implementation plan or permit application containing any of the following provisions: [40 CFR 63.846(d)(4)]
 - 1) Any averaging between emissions of differing pollutants or between differing sources. Emission averaging shall not be allowed between TF, POM and/or PM, and emission averaging shall not be allowed between potlines and anode bake furnaces; [40 CFR 63.846(d)(4)(i)]
 - 2) The inclusion of any emission source other than an existing potline or existing anode bake furnace or the inclusion of any potline or anode bake furnace not subject to the same operating permit; or [40 CFR 63.846(d)(4)(ii)]
 - 3) The inclusion of any potline or anode bake furnace while it is shut down, in the emission calculations. [40 CFR 63.846(d)(4)(iii)]
- v. **Term.** Following review, the Division will approve the plan or permit application, request changes, or request additional information. Once the Division receives any additional information requested, the Division will approve or disapprove the plan or permit application within 120 days. [40 CFR 63.846(d)(5)]
 - 1) The Division will approve the plan for the term of the operating permit; [40 CFR 63.846(d)(5)(i)]
 - 2) To revise the plan prior to the end of the permit term, the permittee shall submit a request to the Division; and [40 CFR 63.846(d)(5)(ii)]
 - 3) The permittee may submit a request to the Division to implement emission averaging after the applicable compliance date. [40 CFR 63.846(d)(5)(iii)]
- vi. **Operation.** While operating under an approved implementation plan, the permittee shall monitor the operating parameters of each control system, keep records, and submit periodic reports as required for each source subject to 40 CFR 63, Subpart LL. [40 CFR 63.846(d)(6)]
- e. **Accuracy and calibration.** The permittee shall submit recommended accuracy requirements to the Division for review and approval. All monitoring devices required by 40 CFR 63.848 shall be certified by the permittee to meet the accuracy requirements and

SECTION B - EMISSION POINTS, EMISSION UNITS, APPLICABLE REGULATIONS, AND OPERATING CONDITIONS (CONTINUED)

shall be calibrated in accordance with the manufacturer's instructions. [40 CFR 63.848(k)]

- f. ***Alternative operating parameters.*** The permittee may monitor alternative control device operating parameters subject to prior written approval by the Division. [40 CFR 63.848(l)]
- g. ***Notification of compliance approach.*** The permittee shall develop and submit to the Division, if requested, an engineering plan that describes the techniques that will be used to address the capture efficiency of the reduction cells for gaseous hazardous air pollutants in compliance with the emission limits in 40 CFR 63.843, 63.844, and 63.846; [40 CFR 63.850(a)(8)]
- h. The permittee shall submit a one-time notification of startup of an existing potline or potroom group that was shut down for a long period and subsequently restarted. The permittee shall provide written notice to the Administrator at least 30 days before the startup. [40 CFR 63.850(a)(9)]
- i. ***Performance test reports.*** Within 60 days after the date of completing each performance test (as defined in 40 CFR 63.2) required by 40 CFR 63, Subpart LL, the permittee shall submit the results of the performance tests following the procedure specified in either 40 CFR 63.850(b)(1) or (b)(2). [40 CFR 63.850(b)]
 - i. For data collected using test methods supported by the EPA's Electronic Reporting Tool (ERT) as listed on the EPA's ERT Web site (<http://www.epa.gov/ttn/chief/ert/index.html>) at the time of the test, the permittee must submit the results of the performance test to the EPA via the Compliance and Emissions Data Reporting Interface (CEDRI). CEDRI can be accessed through the EPA's Central Data Exchange (CDX) (https://cdx.epa.gov/epa_home.asp). Performance test data must be submitted in a file format generated through the use of the EPA's ERT. Alternatively, the permittee may submit performance test data in an electronic file format consistent with the extensible markup language (XML) schema listed on the EPA's ERT Web site once the XML schema is available. If the permittee claims that some of the performance test information being submitted is confidential business information (CBI), the permittee must submit a complete file generated through the use of the EPA's ERT or an alternate electronic file consistent with the XML schema listed on the EPA's ERT Web site, including information claimed to be CBI, on a compact disc, flash drive, or other commonly used electronic storage media to the EPA. The electronic media must be clearly marked as CBI and mailed to U.S. EPA/OAQPS/CORE CBI Office, Attention: Group Leader, Measurement Policy Group, MD C404-02, 4930 Old Page Rd., Durham, NC 27703. The same ERT or alternate file with the CBI omitted must be submitted to the EPA via the EPA's CDX as described earlier in this paragraph. [40 CFR 63.850(b)(1)]
 - ii. For data collected using test methods that are not supported by the EPA's ERT as listed on the EPA's ERT Web site at the time of the test, the permittee must submit the results of the performance test to the Administrator at the appropriate address listed in 40 CFR 63.13. [40 CFR 63.850(b)(2)]

SECTION B - EMISSION POINTS, EMISSION UNITS, APPLICABLE REGULATIONS, AND OPERATING CONDITIONS (CONTINUED)

- iii. For data collected which requires summation of results from both ERT and non-ERT supported test methods in order to demonstrate compliance with an emission limit, the permittee must submit the results of the performance test(s) used to demonstrate compliance with that emission limit to the Administrator at the appropriate address listed in 40 CFR 63.13. [40 CFR 63.850(b)(3)]
- j. **Reporting.** In addition to the information required under 40 CFR 63.10 of the General Provisions, the permittee shall provide semiannual reports containing the information specified in 40 CFR 63.850(d)(1) and (2) to the Division. [40 CFR 63.850(d)]
 - i. Excess emissions report. As required by 40 CFR 63.10(e)(3), the permittee shall submit a report (or a summary report) if measured emissions are in excess of the applicable standard. The report shall contain the information specified in 40 CFR 63.10(e)(3)(v) and be submitted semiannually unless quarterly reports are required as a result of excess emissions. [40 CFR 63.850(d)(1)]
 - ii. If there was a malfunction during the reporting period, the permittee shall submit a report that includes the number, duration and a brief description for each type of malfunction which occurred during the reporting period and which caused or may have caused any applicable emission limitation to be exceeded. The report shall also include a description of actions taken by the permittee during a malfunction of an affected source to minimize emissions in accordance with 40 CFR 63.843(f) and 63.844(f), including actions taken to correct a malfunction. [40 CFR 63.850(d)(2)]
- k. All reports required by 40 CFR 63, Subpart LL not subject to the requirements in 40 CFR 63.850(b) or (c) shall be sent to the Administrator at the appropriate address listed in 40 CFR 63.13. If acceptable to both the Administrator and the permittee, these reports may be submitted on electronic media. The Administrator retains the right to require submittal of reports subject to 40 CFR 63.850(b) in paper format. [40 CFR 63.850(f)]
- l. The Division will notify the permittee in writing of the need for additional time to review the submissions in 40 CFR 63.851(a)(1) through (a)(5) or of approval or intent to deny approval of the submissions in 40 CFR 63.851(a)(1) through (a)(5) within 60 calendar days after receipt of sufficient information to evaluate the submission. The 60-day period begins after the permittee has been notified that the submission is complete. [40 CFR 63.851(a)]
 - i. The test plan in 40 CFR 63.847(b); [40 CFR 63.851(a)(1)]
 - ii. Request to change limits for operating parameters in 40 CFR 63.847(h)(3); [40 CFR 63.851(a)(2)]
 - iii. Request for similar potline monitoring in 40 CFR 63.848(d)(5); [40 CFR 63.851(a)(3)]
 - iv. Request for an alternative method in 40 CFR 63.849(e)(2). [40 CFR 63.851(a)(5)]
- m. The Division will notify the permittee in writing whether the submission is complete within 30 calendar days of receipt of the original submission or within 30 days of receipt of any supplementary information that is submitted. When a submission is incomplete, the Division will specify the information needed to complete the submission and will

SECTION B - EMISSION POINTS, EMISSION UNITS, APPLICABLE REGULATIONS, AND OPERATING CONDITIONS (CONTINUED)

give the permittee 30 calendar days after receipt of the notification to provide the information. [40 CFR 63.851(b)]

- n. The permittee shall submit to the Division quarterly ambient monitoring data reports. If the maximum 24-hour average primary standard or any of the secondary standards for HF as defined in 401 KAR 53:010, Appendix A, are exceeded more than once annually, than any subsequent exceedance is a violation. Any exceedance of the secondary standards for TF as defined in 401 KAR 53:010, Appendix A, is a violation. [401 KAR 61:165]
- o. The permittee shall submit any revisions of the parametric monitoring plan to the Division for approval and incorporation into Appendix B of the permit in accordance with 40 CFR 63.848(f). [401 KAR 52:020, Section 10]
- p. Refer to **SECTION F** for general reporting requirements.
- q. For Potlines #1-4:
 - i. On and after the date specified in 40 CFR 64.7(a) by which the permittee must use monitoring that meets the requirements of 40 CFR 64, the permittee shall submit monitoring reports to the Division in accordance with **SECTION F**. [40 CFR 64.9(a)(1)]
 - ii. A report for monitoring under 40 CFR 64 shall include, at a minimum, the information required under 40 CFR 70.6(a)(3)(iii) and the following information, as applicable: [40 CFR 64.9(a)(2)]
 - 1) Summary information on the number, duration and cause (including unknown cause, if applicable) of excursions or exceedances, as applicable, and the corrective actions taken; [40 CFR 64.9(a)(2)(i)]
 - 2) Summary information on the number, duration and cause (including unknown cause, if applicable) for monitor downtime incidents (other than downtime associated with zero and span or other daily calibration checks, if applicable); and [40 CFR 64.9(a)(2)(ii)]
 - 3) A description of the actions taken to implement a QIP during the reporting period as specified in 40 CFR 64.8. Upon completion of a QIP, the permittee shall include in the next summary report documentation that the implementation of the plan has been completed and reduced the likelihood of similar levels of excursions or exceedances occurring. [40 CFR 64.9(a)(2)(iii)]
 - iii. The threshold for requiring the implementation of a QIP is an accumulation of exceedances or excursions exceeding 5 percent duration of a pollutant-specific emissions unit's operating time for a semiannual reporting period. [40 CFR 64.8(a)]
 - iv. Refer to Appendix A for reporting requirements under 40 CFR 64.

7. Specific Control Equipment Operating Conditions:

- a. ***Monitoring parameters for emission control devices.*** The permittee shall install, operate, calibrate, and maintain a continuous parameter monitoring system for each emission control device. The permittee shall submit for approval by the Division a description of the parameter(s) to be monitored, the operating limits, and the monitoring frequency to ensure that the control device is being properly operated and maintained. An explanation

SECTION B - EMISSION POINTS, EMISSION UNITS, APPLICABLE REGULATIONS, AND OPERATING CONDITIONS (CONTINUED)

of the criteria used for selection of the parameter(s), the operating limits, and the monitoring frequency, including how these relate to emission control also shall be submitted to the Division. Except as provided in 40 CFR 63.848(l), the following monitoring devices shall be installed: [40 CFR 63.848(f)]

- i. For wet scrubbers as the primary control system, devices for the measurement of water flow and air flow; [40 CFR 63.848(f)(3)]
 - ii. For electrostatic precipitators, devices for the measurement of voltage and secondary current; [40 CFR 63.848(f)(4)]
- b. The permittee shall visually inspect the exhaust stack(s) using Method 22 on a twice daily basis (at least 4 hours apart) for evidence of any visible emissions indicating abnormal operations and, shall initiate corrective actions within 1 hour of a visible emissions inspection that indicates abnormal operation. Corrective actions shall include, at a minimum, isolating, shutting down and conducting an internal inspection of the compartment that is the source of the visible emissions that indicate abnormal operations. [40 CFR 63.848(g)(3)]
- c. **Corrective action.** If a monitoring device for a primary control device measures an operating parameter outside the limit(s) established pursuant to 40 CFR 63.847(h) or if visible emissions indicating abnormal operation are observed from the exhaust stack of a control device during a daily inspection, the permittee shall initiate corrective action procedures within 1 hour. Failure to initiate the corrective action procedures within 1 hour or to take the necessary corrective actions to remedy the problem is a violation. [40 CFR 63.848(h)]
- d. **Exceedances.** If the limit for a given operating parameter associated with monitoring a specific control device is exceeded six times in any semiannual reporting period, then any subsequent exceedance in that reporting period is a violation. For the purpose of determining the number of exceedances, no more than one exceedance shall be attributed in any given 24-hour period. [40 CFR 63.848(i)]
- e. The design capture efficiency for the collection system on potlines 1-4 shall equal, or exceed, 95 percent. [401 KAR 51:017]
- f. Refer to **SECTION E.**

8. Compliance Schedule:

Refer to **SECTION I.**

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Subject Item D - 40 CFR 63, Subpart LL - CWPB1 Sources (Potline 5)

EP	Group	Equip. Desig.	Cons. Date	Description	Control Equipment	Maximum Capacity (Tons/Year)*
EMISSION GROUP 42						
89	42	4250	1998	Potline #5, CWPB1	Dry Alumina Scrubber 48-0063	66,000 tons aluminum produced
90	42	3091	1998	Potline #5 Roof Monitor, CWPB1	None	66,000 tons aluminum produced

*Limited by an operating limitation below.

APPLICABLE REGULATIONS:

401 KAR 51:017, *Prevention of significant deterioration of air quality*, applicable with respect to PM, PM₁₀, PM_{2.5}, SO₂, CO, VOC, and Fluorides.

401 KAR 59:010, *New process operations*

40 KAR 63:002, Section 2(4)(bb), 40 C.F.R. 63.840 through 63.855, Tables 1 through 4, and Appendix A (Subpart LL), *National Emission Standards for Hazardous Air Pollutants for Primary Aluminum Reduction Plants*

40 CFR 64, *Compliance Assurance Monitoring*, applicable to Potline #5 with respect to PM/PM₁₀. Refer to Appendix A-2.

PRECLUDED REGULATIONS:

401 KAR 51:017, *Prevention of significant deterioration of air quality*, Sections 8 to 16, for NO_x.

1. Operating Limitations:

- a. At all times, the permittee shall operate and maintain any affected source, including associated air pollution control equipment and monitoring equipment, in a manner consistent with safety and good air pollution control practices for minimizing emissions. Determination of whether such operation and maintenance procedures are being used will be based on information available to the Administrator which may include, but is not limited to, monitoring results, review of operation and maintenance procedures, review of operation and maintenance records and inspection of the source. [40 CFR 63.844(f)]
- b. ***Startup of potlines.*** The permittee shall develop a written startup plan as described in 40 CFR 63.854(b) that contains specific procedures to be followed during startup periods of potline(s). Compliance with the applicable standards in 40 CFR 63.854(b) will be demonstrated through site inspection(s) and review of site records by the Division. [40 CFR 63.847(k)]
- c. ***Periods of operation other than startup.*** The permittee shall comply with the requirements of 40 CFR 63.854(a)(1) through (8) during periods of operation other than startup. [40 CFR 63.854(a)]
 - i. Ensure the potline scrubbers and exhaust fans are operational at all times. [40 CFR 63.854(a)(1)]
 - ii. Ensure that the primary capture and control system is operating at all times. [40 CFR 63.854(a)(2)]
 - iii. Hood covers should be replaced as soon as possible after each potroom operation. [40

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CFR 63.854(a)(3)]

- iv. Inspect potlines daily and perform the work practices specified in 40 CFR 63.854(a)(4)(i) through (iii). [40 CFR 63.854(a)(4)]
 - 1) Identify unstable pots as soon as practicable but in no case more than 12 hours from the time the pot became unstable; [40 CFR 63.854(a)(4)(i)]
 - 2) Reduce cell temperatures to as low as practicable, and follow the written operating plan described in 40 CFR 63.854(b)(4) if the cell temperature exceeds the specified high temperature limit; and [40 CFR 63.854(a)(4)(ii)]
 - 3) Reseal pot crusts that have been broken as often and as soon as practicable. [40 CFR 63.854(a)(4)(iii)]
 - v. Ensure that hood covers fit properly and are in good condition. [40 CFR 63.854(a)(5)]
 - vi. If the exhaust system is equipped with an adjustable damper system, the hood exhaust rate for individual pots shall be increased whenever hood covers are removed from a pot, provided that the exhaust system will not be overloaded by placing too many pots on high exhaust. [40 CFR 63.854(a)(6)]
 - vii. Dust entrainment must be minimized during material handling operations and sweeping of the working aisles. [40 CFR 63.854(a)(7)]
 - viii. Only tapping crucibles with functional aspirator air return systems (for returning gases under the collection hooding) can be used, unless the Division approves an alternative tapping crucible. [40 CFR 63.854(a)(8)]
- d. ***Periods of startup.*** The permittee shall comply with the requirements of 40 CFR 63.854(a)(1) through (8) and 40 CFR 63.854(b)(1) through (4) during periods of startup for each affected potline. [40 CFR 63.854(b)]
- i. Develop a potline startup schedule before starting up the potline. [40 CFR 63.854(b)(1)]
 - ii. Keep records of the number of pots started each day. [40 CFR 63.854(b)(2)]
 - iii. Inspect potlines daily and adjust pot parameters to their optimum levels, as specified in the operating plan described in 40 CFR 63.854(b)(4), including, but not limited to: alumina addition rate, exhaust air flow rate, cell voltage, feeding level, anode current and liquid and solid bath levels. [40 CFR 63.854(b)(3)]
 - iv. Prepare a written operating plan to minimize emissions during startup to include, but not limited to, the requirements in 40 CFR 63.854(b)(1) through (3). The operating plan shall include a specified high temperature limit for pots that will trigger corrective action. [40 CFR 63.854(b)(4)]
- e. The permittee shall not exceed an aluminum production rate of 66,000 tons per year based upon a 12-month rolling total. [401 KAR 51:017]
- f. The petroleum coke used to make the green anodes shall not exceed 3.0 percent sulfur by weight and the pitch shall not exceed 0.80 percent sulfur by weight as measured by the standard ASTM method, an approved alternative method, or vendor Certificate of Analysis. [401 KAR 51:017]

SECTION B - EMISSION POINTS, EMISSION UNITS, APPLICABLE REGULATIONS, AND OPERATING CONDITIONS (CONTINUED)

Compliance Demonstration Method:

Refer to 4. Specific Monitoring Requirements, 5. Specific Recordkeeping Requirements, and 6. Specific Reporting Requirements.

2. Emission Limitations:

- a. For each potline (both roof monitor and stack emissions), the permittee shall not discharge or cause to be discharged into the atmosphere any emissions in excess of: [40 CFR 63.843(a) and 63.844(a)]
 - i. **TF limit.** Emissions of TF shall not exceed: 1.2 lb/ton (0.6 kg/Mg) of aluminum produced. [40 CFR 63.844(a)(1)]
 - ii. **POM limit.** Emissions of POM shall not exceed: 1.1 lb/ton (0.55 kg/Mg) of aluminum produced. [40 CFR 63.843(a)(2)(iv)]
 - iii. **PM limit.** Emissions of PM shall not exceed: 7.4 lb/ton (3.7 kg/Mg) of aluminum produced. [40 CFR 63.843(a)(3)(i)]
 - iv. **COS limit.** Emissions of COS shall not exceed: 3.9 lb/ton (1.95 kg/Mg) of aluminum produced. [40 CFR 63.843(e)]

Compliance Demonstration Method:

1. The permittee shall determine compliance with the applicable TF, POM, or PM emission limits using the following equations and procedures: [40 CFR 63.847(e)]
 - A. Compute the emission rate (E_p) of TF, POM, or PM from each potline using the following equation: [40 CFR 63.847(e)(1)]

$$E_p = \frac{[(C_{s1} \times Q_{sd})_1 + (C_{s2} \times Q_{sd})_2]}{(P \times K)}$$

Where:

- E_p = emission rate of TF, POM, or PM from a potline, lb/ton (kg/Mg);
- C_{s1} = concentration of TF, POM, or PM from the primary control system, mg/dscf (mg/dscm);
- Q_{sd} = volumetric flow rate of effluent gas corresponding to the appropriate subscript location, dscf/hr (dscm/hr);
- C_{s2} = concentration of TF, POM, or PM as measured for roof monitor emissions, mg/dscf (mg/dscm);
- P = aluminum production rate, ton/hr (Mg/hr);
- K = conversion factor, 453,600 mg/lb (106 mg/kg) for TF, POM, and PM;
- ₁ = subscript for primary control system effluent gas; and
- ₂ = subscript for secondary control system or roof monitor effluent gas.

- B. Determine the weight of the aluminum tapped from the potline using the monitoring devices required in 40 CFR 63.848(j). [40 CFR 63.847(e)(5)]
 - C. Determine the aluminum production rate (P) by dividing the number of hours in the calendar month into the weight of aluminum tapped from the potline during the calendar month that includes the three runs of a performance test. [40 CFR 63.847(e)(6)]
2. The permittee shall calculate, for each potline, the emission rate of COS for each calendar month of operation using the following equation: [40 CFR 63.847(j)]

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$$E_{COS} = [K] \times \left[\frac{Y}{Z} \right] \times [S]$$

Where:

- E_{COS} = the emission rate of COS during the calendar month, pounds per ton of aluminum produced;
- K = factor accounting for molecular weights and conversion of sulfur to carbonyl sulfide = 234;
- Y = the mass of anode consumed in the potline during the calendar month, tons;
- Z = the mass of aluminum produced by the potline during the calendar month, tons; and
- S = the weighted average fraction of sulfur in the anode coke consumed in the production of aluminum during the calendar month (e.g., if the weighted average sulfur content of the anode coke consumed during the calendar month was 2.5 percent, then $S = 0.025$). The weight of anode coke used during the calendar month of each different concentration of sulfur is used to calculate the overall weighted average fraction of sulfur.

Compliance is demonstrated if the calculated value of E_{COS} is less than the applicable standard for COS emissions in 40 CFR 63.843(e) and 63.844(e).

- b. The permittee shall not cause, suffer, allow, or permit any continuous emission into the open air from a control device or stack associated with any affected facility which is equal to or greater than twenty (20) percent opacity. [401 KAR 59:010, Section 3(1)(a)]

Compliance Demonstration Method:

Refer to 4. Specific Monitoring Requirements (c) for opacity compliance demonstration.

- c. For emissions from a control device or stack the permittee shall not cause, suffer, allow or permit the emission into the open air of particulate matter from any affected facility which is in excess of the quantity specified in 401 KAR 59:010, Appendix A. [401 KAR 59:010, Section 3(2)]
- For process weight rates ≤ 0.5 tons/hour: 2.34 lbs/hour
 - For process weight rates ≤ 30 tons/hour: $E'_{PMj} = 3.59P_j^{0.62}$
 - For process weight rates > 30 tons/hour: $E'_{PMj} = 17.31P_j^{0.16}$

Where:

- j = Emission Unit;
- E'_{PMj} = The allowable particulate emission rate for unit j in pounds/hour;
- P_j = The process weight rate in tons/hour

Compliance Demonstration Method:

Compliance with the 401 KAR 59:010 mass emission standard is assumed when complying with the 401 KAR 51:017 emission limitations.

SECTION B - EMISSION POINTS, EMISSION UNITS, APPLICABLE REGULATIONS, AND OPERATING CONDITIONS (CONTINUED)

- d. The permittee shall not allow emissions to exceed any of the following limits, based on a monthly average: [401 KAR 51:017]

Emission Point	PM (lb/hr)	PM ₁₀ (lb/hr)	SO ₂ (lb/hr)	CO (lb/hr)	F (lb/hr)	HF (lb/hr)	VOC (lb/hr)
89 (Main Stack)	13.875	8.048	364.52	2588.308	0.126	0.685	7.384
90 (Roof Monitors)	37.671	21.849	7.44	52.823	2.886	5.342	0.166
Combined (89 + 90)	51.456	29.897	371.96	2641.13	3.012	6.027	7.55

Compliance Demonstration Method:

Compliance with the emission limitations for PM, PM₁₀, SO₂, CO, F, HF, and VOC shall be demonstrated through the use of the following equation:

$$E_p = \frac{[P \times EF_c]}{H}$$

Where:

E_p = Emission rate of PM, PM₁₀, SO₂, CO, F, HF, or VOC in lb/hr

P = Monthly aluminum production rate in tons/month; which is the sum of daily totals

EF_c = Combined* emission factor for PM, PM₁₀, SO₂, CO, F, HF, or VOC calculated using the results of the most recent performance test or emission factor approved in the most recent permit revision (lb/ton)

H = Monthly hours of operation

*Combined emissions include emissions from stacks and roof monitors.

Also refer to **3. Testing Requirements (m)**, **4. Specific Monitoring Requirements**, and **5. Specific Recordkeeping Requirements**.

- e. The permittee shall not allow combined emissions of NO_x from potline 5 (combined roof monitors and control stack) to exceed 36 tons per year, based on a 12-month rolling total. [To preclude 401 KAR 51:017, Sections 8 to 16]

Compliance Demonstration Method:

At the beginning of each month, the preceding month's NO_x emissions in tons shall be calculated and recorded. The annual emissions for each rolling 12-month period shall be calculated every month and kept available at the plant site. The following equations shall be used:

$$E_{NOxi_{Stack}} = \frac{P_i \times EF_{SNOx}}{2000} \text{ and } E_{NOxi_{Roof}} = \frac{P_i \times EF_{RNOx}}{2000}$$

$$T_{NOxi} = E_{NOxi_{Stack}} + E_{NOxi_{Roof}}$$

$$T_{NOx_{year}} = \sum_{i=1}^{12} T_{NOxi}$$

Where:

$E_{NOxi_{Stack}}$ = NO_x emissions from Potline 5 stack during month i , in tons/month;

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- $E_{NOxi_{Roof}}$ = NO_x emissions from Potline 5 roof monitor during month i , in tons/month;
- P_i = Monthly production rate from Potline 5 during month i , in tons of aluminum/month (sum of daily totals);
- EF_{SNOx} = Stack emission factor for NO_x calculated using the results of the most recent performance test, in pounds of NO_x per ton of aluminum;
- EF_{RNOx} = Roof monitor emission factor for NO_x calculated using the results of the most recent performance test, in pounds of NO_x per ton of aluminum;
- T_{NOxi} = Total combined NO_x emissions from Potline #5 during month i , in tons/month;
- $T_{NOx_{year}}$ = 12-month rolling total combined NO_x emissions from Potline #5 in the previous 12 months, in tons/year.

3. Testing Requirements:

- a. **Test plan.** The permittee shall prepare a site-specific test plan prior to the initial performance test according to the requirements of 40 CFR 63.7(c). The test plan shall include procedures for conducting the initial performance test and for subsequent performance tests required in 40 CFR 63.848 for emission monitoring. In addition to the information required by 40 CFR 63.7, the test plan shall include: [40 CFR 63.847(b)]
- i. Procedures to ensure a minimum of three runs are performed annually for the primary control system for each source; [40 CFR 63.847(b)(1)]
 - ii. Procedures for establishing the frequency of testing to ensure that at least one run is performed before the 15th of the month, at least one run is performed after the 15th of the month, and that there are at least 6 days between two of the runs during the month, or that secondary emissions are measured according to an alternate schedule satisfactory to the Division. [40 CFR 63.847(b)(8)]
- b. Following approval of the site-specific test plan, the permittee shall conduct a performance test to demonstrate initial compliance according to the procedures in 40 CFR 63.847(d). If a performance test has been conducted on the primary control system for potlines within the 12 months prior to the compliance date, the results of that performance test may be used to demonstrate initial compliance. The permittee shall conduct the performance test: [40 CFR 63.847(c)]
- i. During the first month following: [40 CFR 63.847(c)(1) and (2)]
 - 1) Startup for TF testing. [40 CFR 63.847(a)(4)]
 - 2) October 17, 2016 for COS testing. [40 CFR 63.847(a)(2)(ii)]
 - 3) October 16, 2017 for POM and PM testing. [40 CFR 63.847(a)(2)(iii)]
 - ii. For a new potline that was shut down at the time compliance would have otherwise been required and is subsequently restarted, by the 180th day following startup for a potline or potroom group. The 180-day period starts when the first pot in a potline or potroom group is energized. [40 CFR 63.847(c)(2)(i)]
- c. **Performance test requirements.** The initial performance test and all subsequent performance tests shall be conducted in accordance with the applicable requirements of the general provisions in 40 CFR 63, Subpart A, the approved test plan, and the procedures in 40 CFR 63.847. Performance tests shall be conducted under such

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conditions as the Administrator specifies to the permittee based on representative performance of the affected source for the period being tested. Upon request, the permittee shall make available to the Administrator such records as may be necessary to determine the conditions of performance tests. [40 CFR 63.847(d)]

- d. ***TF, POM and PM emissions from potlines.*** For each potline, the permittee shall measure and record the emission rates of TF, POM and PM exiting the outlet of the primary control system and the rate of secondary emissions exiting through each roof monitor. Using the equation in 40 CFR 63.847(e)(1), the permittee shall compute and record the average of at least three runs semiannually for secondary emissions and at least three runs each year for the primary control system to determine compliance with the applicable emission limit. Compliance is demonstrated when the emission rates of TF, POM, and PM are equal to or less than the applicable emission limits in 40 CFR 63.843, 40 CFR 63.844, or 40 CFR 63.846. [40 CFR 63.847(d)(1)]
- e. ***Previous control device tests.*** If the permittee has performed more than one test of primary emission control device(s) for a potline during the previous consecutive 12 months, the average of all runs performed in the previous 12-month period shall be used to determine the contribution from the primary emission control system. [40 CFR 63.847(d)(3)]
- f. ***TF and PM emissions from potlines.*** Using the procedures in 40 CFR 63.847 and in the approved test plan, the permittee shall monitor emissions of TF and PM from each potline by conducting annual performance tests on the primary control system and semiannual performance tests on the secondary emissions. The permittee shall compute and record the average semiannually from at least three runs for secondary emissions and the average from at least three runs for the primary control system to determine compliance with the applicable emission limit. The permittee shall include all valid runs in the semiannual average. The duration of each run for secondary emissions shall represent a complete operating cycle. Potline emissions shall be recorded as the sum of the average of at least three runs from the primary control system and the average of at least three runs from the roof monitor or secondary emissions control device. [40 CFR 63.848(a)]
- g. ***POM emissions from potlines.*** Using the procedures in 40 CFR 63.847 and in the approved test plan, the permittee shall monitor emissions of POM from each potline stack annually and secondary potline POM emissions semiannually. The permittee shall compute and record the semiannual average from at least three runs for secondary emissions and at least three runs for the primary control systems to determine compliance with the applicable emission limit. The permittee shall include all valid runs in the semiannual average. The duration of each run for secondary emissions shall represent a complete operating cycle. The primary control system shall be sampled over an 8-hour period, unless site-specific factors dictate an alternative sampling time subject to the approval of the Division. Potline emissions shall be recorded as the sum of the average of at least three runs from the primary control system and the average of at least three runs from the roof monitor or secondary emissions control device. [40 CFR 63.848(b)]

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- h. The permittee shall use the following reference methods to determine compliance with the applicable emission limits for TF, POM, PM, and conduct visible emissions observations: [40 CFR 63.849(a)]
 - i. Method 1 in 40 CFR 60, Appendix A for sample and velocity traverses; [40 CFR 63.849(a)(1)]
 - ii. Method 2 in 40 CFR 60, Appendix A for velocity and volumetric flow rate; [40 CFR 63.849(a)(2)]
 - iii. Method 3 in 40 CFR 60, Appendix A for gas analysis; [40 CFR 63.849(a)(3)]
 - iv. Method 13A or Method 13B in 40 CFR 60, Appendix A, or an approved alternative, for the concentration of TF where stack or duct emissions are sampled; [40 CFR 63.849(a)(4)]
 - v. Method 13A or Method 13B and Method 14 or Method 14A in 40 CFR 60, Appendix A or an approved alternative method for the concentration of TF where emissions are sampled from roof monitors not employing wet roof scrubbers; [40 CFR 63.849(a)(5)]
 - vi. Method 315 in 40 CFR 63, Appendix A or an approved alternative method for the concentration of POM where stack or duct emissions are sampled; [40 CFR 63.849(a)(6)]
 - vii. Method 315 in 40 CFR 63, Appendix A and Method 14 or 14A in 40 CFR 60, Appendix A or an approved alternative method for the concentration of POM where emissions are sampled from roof monitors not employing wet roof scrubbers. Method 315 need not be set up as required in the method. Instead, when using Method 14A, replace the Method 14A monitor cassette filter with the filter specified by Method 315. Recover and analyze the filter according to Method 315. When using Method 14, test at ambient conditions, do not heat the filter and probe, and do not analyze the back half of the sampling train; [40 CFR 63.849(a)(7)]
 - viii. Method 5 in 40 CFR 60, Appendix A or an approved alternative method for the concentration of PM where stack or duct emissions are sampled; [40 CFR 63.849(a)(8)]
 - ix. Method 17 and Method 14 or Method 14A in 40 CFR 60, Appendix A or an approved alternative method for the concentration of PM where emissions are sampled from roof monitors not employing wet roof scrubbers. Method 17 need not be set up as required in the method. Instead, when using Method 14A, replace the Method 14A monitor cassette filter with the filter specified by Method 17. Recover and analyze the filter according to Method 17. When using Method 14, test at ambient conditions, do not heat the filter and probe, and do not analyze the back half of the sampling train; [40 CFR 63.849(a)(9)]
 - x. Method 22 in 40 CFR 60, Appendix A or an approved alternative method for determination of visual emissions; [40 CFR 63.849(a)(12)]
- i. Except as provided in 40 CFR 63.845(g)(1), references to “potroom” or “potroom group” in Method 14 in 40 CFR 60, Appendix A shall be interpreted as “potline” for the purposes of 40 CFR 63, Subpart LL. [40 CFR 63.849(c)]

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- j. For sampling using Method 14 in 40 CFR 60, Appendix A, the permittee shall install one Method 14 manifold per potline in a potroom that is representative of the entire potline, and this manifold shall meet the installation requirements specified in 40 CFR 60, Appendix A, Method 14, Section 2.2.1. [40 CFR 63.849(d)]
- k. The permittee may use an alternative test method for TF or POM emissions providing: [40 CFR 63.849(e)]
 - i. The permittee has already demonstrated the equivalency of the alternative method for a specific plant and has received previous approval from the U.S. EPA or the Division for TF or POM measurements using the alternative method; or [40 CFR 63.849(e)(1)]
 - ii. The permittee demonstrates to the satisfaction of the Division that the results from the alternative method meet the criteria specified in 40 CFR 63.848(d)(1) and (d)(3) through (d)(6). The results from the alternative method shall be based on simultaneous sampling using the alternative method and the following reference methods: [40 CFR 63.849(e)(2)]
 - 1) For TF, Methods 13 and 14 or Method 14A in 40 CFR 60, Appendix A; or [40 CFR 63.849(e)(2)(i)]
 - 2) For POM, Method 315 in 40 CFR 63, Appendix A and Method 14 in 40 CFR 60, Appendix A. [40 CFR 63.849(e)(2)(ii)]
- l. The permittee shall use either ASTM D4239-14e1 or ASTM D6376-10 (incorporated by reference; see 40 CFR 63.14) for determination of the sulfur content in anode coke shipments to determine compliance with the applicable emission limit for COS emissions. [40 CFR 63.849(f)]
- m. The following compliance tests shall be performed to determine compliance with all emission limitations listed above and to develop emission factors: [401 KAR 51:017]
 - i. The permittee shall conduct perform testing according to Reference Method 5 and Reference Method 201A/202 for particulate emissions (filterable PM, PM₁₀, PM_{2.5} and Condensable Particulate) once every 12 months, no later than 30 days after the anniversary date of the initial performance test (March 13, 2000). These tests can be performed simultaneously with the testing required by 40 CFR 63, Subpart LL.
 - ii. The permittee shall perform testing according to Reference Method 6 for sulfur dioxide (SO₂) emissions once every 12 months, no later than 30 days after the anniversary date of the initial performance test.
 - iii. The permittee shall perform testing according to Reference Method 25 or 25A for VOC emissions once every 12 months, no later than 30 days after the anniversary date of the initial performance test (March 13, 2000).
 - iv. The permittee shall perform testing according to Reference Method 7 or 7E for NO_x emissions once within the 5 year permit term of permit V-24-010.
 - v. The permittee shall perform testing according to Reference Method 10, 10A, or 10B for CO emissions once every 12 months, no later than 30 days after the anniversary date of the initial performance test (March 13, 2000).
- n. The permittee shall perform one annual test on those pollutants that were less than or equal to 75% of the limitations in **2. Emission Limitations (d)**. If the results of the

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annual test remain less than or equal to 75% of the permit limit, then no additional testing of those pollutants is required for the duration of the current permit. If the result(s) of testing are not less than or equal to 75% of the permit limit or if no testing was performed on a pollutant during the previous permit period, then annual testing is required until two consecutive annual tests demonstrate that the emissions of SO₂, CO, and VOC are less than or equal to 75% of the standards specified herein. No additional testing shall be required during the term of this permit once two consecutive annual tests have met these criteria.

- o. Pursuant to 401 KAR 59:005, Section 2(2) and 401 KAR 50:045, Section 1, performance testing using the reference methods specified in 401 KAR 50:015 shall be conducted as required by the Division.

4. Specific Monitoring Requirements:

- a. ***Selection of monitoring parameters.*** The permittee shall determine the operating limits and monitoring frequency for each control device that is to be monitored as required in 40 CFR 63.848(f). [40 CFR 63.847(h)]
 - i. For potlines, the permittee shall determine upper and/or lower operating limits, as appropriate, for each monitoring device for the emission control system from the values recorded during each of the runs performed during the initial performance test and from historical data from previous performance tests conducted by the methods specified in 40 CFR 63, Subpart LL. [40 CFR 63.847(h)(1)]
 - ii. The permittee may redetermine the upper and/or lower operating limits, as appropriate, based on historical data or other information and submit an application to the Division to change the applicable limit(s). The redetermined limits shall become effective upon approval by the Division. [40 CFR 63.847(h)(3)]
- b. ***Weight of aluminum.*** The permittee shall install, operate, and maintain a monitoring device to determine the daily weight of aluminum produced. [40 CFR 63.848(j)]
- c. The permittee shall perform a qualitative visual observation of the opacity of emissions at each stack twice daily and at each roof monitor no less than weekly while the affected facility is operating. If visible emissions from a stack or roof monitor are observed (not including condensed water in the plume), the permittee shall determine the opacity using U.S. EPA Reference Method 9. In lieu of determining the opacity using U.S. EPA Reference Method 9, the permittee shall immediately perform a corrective action which results in no visible emissions (not including condensed water in the plume). The Method 22 observations performed for 40 CFR 63, Subpart LL may also be used to meet the qualitative requirement for the stack. [401 KAR 52:020, Section 10]
- d. The permittee shall continue to operate and maintain ambient air monitoring equipment for the detection of fluorides. This equipment shall be located at sites specified by the Division. [401 KAR 52:020, Section 10]
- e. To provide reasonable assurance that the particulate matter (PM and PM₁₀) emission limitations are being met, the permittee shall monitor the 12-month rolling amount and

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type of process weight added to each emissions unit and the continuous air flow rate and pressure drop across each control device. [401 KAR 52:020, Section 10]

- f. The permittee shall monitor the monthly and 12-month rolling individual and combined total emissions of PM, PM₁₀, SO₂, CO, F, HF, NO_x, and VOC. [401 KAR 52:020, Section 10]
- g. The permittee shall install, operate, calibrate, and maintain a continuous monitoring system for the control equipment according to the approved parametric monitoring plan, which is located in Appendix B to the permit, as provided in 40 CFR 63.848(f). [401 KAR 52:020, Section 10]
- h. Refer to **SECTION F** for general monitoring requirements.
- i. For Potline #5, refer to Appendix A for CAM requirements pursuant to 40 CFR 64.

5. Specific Recordkeeping Requirements:

- a. The permittee shall maintain files of all information (including all reports and notifications) required by 40 CFR 63.10(b) and by 40 CFR 63, Subpart LL. [40 CFR 63.850(e)]
- b. The permittee shall retain each record for at least 5 years following the date of each occurrence, measurement, maintenance, corrective action, report, or record. The most recent 2 years of records shall be retained at the facility. The remaining 3 years of records may be retained offsite; [40 CFR 63.850(e)(1)]
- c. The permittee may retain records on microfilm, on a computer, on computer disks, on magnetic tape, or on microfiche; [40 CFR 63.850(e)(2)]
- d. The permittee may report required information on paper or on a labeled computer disc using commonly available and compatible computer software; and [40 CFR 63.850(e)(3)]
- e. In addition to the general records required by 40 CFR 63.10(b), the permittee shall maintain records of the following information: [40 CFR 63.850(e)(4)]
 - i. Daily production rate of aluminum; [40 CFR 63.850(e)(4)(i)]
 - ii. Records supporting a request for reduced sampling of potlines; [40 CFR 63.850(e)(4)(vii)]
 - iii. Records, such as a checklist or the equivalent, demonstrating that the daily visual inspection of the exhaust stack for each control device has been performed as required in 40 CFR 63.848(g), including the results of each inspection; [40 CFR 63.850(e)(4)(xi)]
 - iv. For a potline equipped with an HF continuous emission monitor, records of information and data required by 40 CFR 63.10(c); [40 CFR 63.850(e)(4)(xii)]
 - v. Records documenting the corrective actions taken when the limit(s) for an operating parameter established under 40 CFR 63.847(h) were exceeded or when visible emissions indicating abnormal operation were observed from a control device stack

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- during a daily inspection required under 40 CFR 63.848(g). [40 CFR 63.850(e)(4)(xiii)]
- vi. Records documenting any POM data that are invalidated due to the installation and startup of a cathode; [40 CFR 63.850(e)(4)(xiv)]
 - vii. Records documenting the portion of TF that is measured as particulate matter and the portion that is measured as gaseous when the particulate and gaseous fractions are quantified separately using an approved test method; [40 CFR 63.850(e)(4)(xv)]
 - viii. Records of the occurrence and duration of each malfunction of operation (i.e. process equipment) or the air pollution control equipment and monitoring equipment; and [40 CFR 63.850(e)(4)(xvi)]
 - ix. Records of actions taken during periods of malfunction to minimize emissions in accordance with 40 CFR 63.843(f) and 63.844(f), including corrective actions to restore malfunctioning process and air pollution control and monitoring equipment to its normal or usual manner of operation. [40 CFR 63.850(e)(4)(xvii)]
- f. The permittee shall maintain records of the installation, use, and maintenance of the ambient air monitoring equipment. [401 KAR 52:020, Section 10]
- g. The permittee shall maintain records of the following: [401 KAR 52:020, Section 10]
- i. 12-month rolling throughput;
 - ii. A log of the qualitative visual observations made as specified in **4. Specific Monitoring Requirements** including the date, time, initials of observer, whether any emissions were observed (yes/no), and any U.S. EPA Reference Method 9 readings taken;
 - iii. Monthly hours of operation;
 - iv. Monthly anode consumption;
 - v. Records of sulfur contents of coal and pitch from standard ASTM method, an approved alternative method, or by vendor Certificate of Analysis per barge shipment basis;
 - vi. Records of ambient air monitoring results for fluorides;
 - vii. Records of calibration for all monitoring devices;
 - viii. Records of the quarterly ambient monitoring data reports required by **6. Specific Reporting Requirements (m)**.
 - ix. Monthly and 12-month rolling individual and combined total emissions of PM, PM₁₀, SO₂, CO, F, HF, NO_x, and VOC
 - x. Records of violations of the ambient air standards for total and gaseous fluorides as prescribed in 401 KAR 53:010.
- h. The permittee shall maintain records of the current parametric monitoring plan submitted to the Division in accordance with 40 CFR 63.848(f). [401 KAR 52:020, Section 10]
- i. Refer to **SECTION F** for general recordkeeping requirements.
- j. For Potline #5:
- i. The permittee shall comply with the recordkeeping requirements specified in **SECTION F**. The permittee shall maintain records of monitoring data, monitor

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- performance data, corrective actions taken, any written quality improvement plan required pursuant to 40 CFR 64.8 and any activities undertaken to implement a quality improvement plan, and other supporting information required to be maintained under 40 CFR 64 (such as data used to document the adequacy of monitoring, or records of monitoring maintenance or corrective actions). [40 CFR 64.9(b)(1)]
- ii. Instead of paper records, the permittee may maintain records on alternative media, such as microfilm, computer files, magnetic tape disks, or microfiche, provided that the use of such alternative media allows for expeditious inspection and review, and does not conflict with other applicable recordkeeping requirements. [40 CFR 64.9(b)(1)]

6. Specific Reporting Requirements:

- a. ***Accuracy and calibration.*** The permittee shall submit recommended accuracy requirements to the Division for review and approval. All monitoring devices required by 40 CFR 63.848 shall be certified by the permittee to meet the accuracy requirements and shall be calibrated in accordance with the manufacturer's instructions. [40 CFR 63.848(k)]
- b. ***Alternative operating parameters.*** The permittee may monitor alternative control device operating parameters subject to prior written approval by the Division. [40 CFR 63.848(l)]
- c. ***Notification of compliance approach.*** The permittee shall develop and submit to the Division, if requested, an engineering plan that describes the techniques that will be used to address the capture efficiency of the reduction cells for gaseous hazardous air pollutants in compliance with the emission limits in 40 CFR 63.843, 63.844, and 63.846; and [40 CFR 63.850(a)(8)]
- d. The permittee shall submit a one-time notification of startup of an existing potline or potroom group that was shut down for a long period and subsequently restarted. The permittee shall provide written notice to the Administrator at least 30 days before the startup. [40 CFR 63.850(a)(9)]
- e. ***Performance test reports.*** Within 60 days after the date of completing each performance test (as defined in 40 CFR 63.2) required by 40 CFR 63, Subpart LL, the permittee shall submit the results of the performance tests following the procedure specified in either 40 CFR 63.850(b)(1) or (b)(2). [40 CFR 63.850(b)]
 - i. For data collected using test methods supported by the EPA's Electronic Reporting Tool (ERT) as listed on the EPA's ERT Web site (<http://www.epa.gov/ttn/chief/ert/index.html>) at the time of the test, the permittee must submit the results of the performance test to the EPA via the Compliance and Emissions Data Reporting Interface (CEDRI). CEDRI can be accessed through the EPA's Central Data Exchange (CDX) (https://cdx.epa.gov/epa_home.asp). Performance test data must be submitted in a file format generated through the use of the EPA's ERT. Alternatively, the permittee may submit performance test data in an

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- electronic file format consistent with the extensible markup language (XML) schema listed on the EPA's ERT Web site once the XML schema is available. If the permittee claims that some of the performance test information being submitted is confidential business information (CBI), the permittee must submit a complete file generated through the use of the EPA's ERT or an alternate electronic file consistent with the XML schema listed on the EPA's ERT Web site, including information claimed to be CBI, on a compact disc, flash drive, or other commonly used electronic storage media to the EPA. The electronic media must be clearly marked as CBI and mailed to U.S. EPA/OAQPS/CORE CBI Office, Attention: Group Leader, Measurement Policy Group, MD C404-02, 4930 Old Page Rd., Durham, NC 27703. The same ERT or alternate file with the CBI omitted must be submitted to the EPA via the EPA's CDX as described earlier in this paragraph. [40 CFR 63.850(b)(1)]
- ii. For data collected using test methods that are not supported by the EPA's ERT as listed on the EPA's ERT Web site at the time of the test, the permittee must submit the results of the performance test to the Administrator at the appropriate address listed in 40 CFR 63.13. [40 CFR 63.850(b)(2)]
 - iii. For data collected which requires summation of results from both ERT and non-ERT supported test methods in order to demonstrate compliance with an emission limit, the permittee must submit the results of the performance test(s) used to demonstrate compliance with that emission limit to the Administrator at the appropriate address listed in 40 CFR 63.13. [40 CFR 63.850(b)(3)]
- f. **Reporting.** In addition to the information required under 40 CFR 63.10 of the General Provisions, the permittee shall provide semiannual reports containing the information specified in 40 CFR 63.850(d)(1) and (2) to the Division. [40 CFR 63.850(d)]
- i. Excess emissions report. As required by 40 CFR 63.10(e)(3), the permittee shall submit a report (or a summary report) if measured emissions are in excess of the applicable standard. The report shall contain the information specified in 40 CFR 63.10(e)(3)(v) and be submitted semiannually unless quarterly reports are required as a result of excess emissions. [40 CFR 63.850(d)(1)]
 - ii. If there was a malfunction during the reporting period, the permittee shall submit a report that includes the number, duration and a brief description for each type of malfunction which occurred during the reporting period and which caused or may have caused any applicable emission limitation to be exceeded. The report shall also include a description of actions taken by the permittee during a malfunction of an affected source to minimize emissions in accordance with 40 CFR 63.843(f) and 63.844(f), including actions taken to correct a malfunction. [40 CFR 63.850(d)(2)]
- g. All reports required by 40 CFR 63, Subpart LL not subject to the requirements in 40 CFR 63.850(b) or (c) shall be sent to the Administrator at the appropriate address listed in 40 CFR 63.13. If acceptable to both the Administrator and the permittee, these reports may be submitted on electronic media. The Administrator retains the right to require submittal of reports subject to 40 CFR 63.850(b) in paper format. [40 CFR 63.850(f)]
- h. The Division will notify the permittee in writing of the need for additional time to review the submissions in 40 CFR 63.851(a)(1) through (a)(5) or of approval or intent to deny

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approval of the submissions in 40 CFR 63.851(a)(1) through (a)(5) within 60 calendar days after receipt of sufficient information to evaluate the submission. The 60-day period begins after the permittee has been notified that the submission is complete. [40 CFR 63.851(a)]

- i. The test plan in 40 CFR 63.847(b); [40 CFR 63.851(a)(1)]
 - ii. Request to change limits for operating parameters in 40 CFR 63.847(h)(3); [40 CFR 63.851(a)(2)]
 - iii. Request for an alternative method in 40 CFR 63.849(e)(2). [40 CFR 63.851(a)(5)]
- i. The Division will notify the permittee in writing whether the submission is complete within 30 calendar days of receipt of the original submission or within 30 days of receipt of any supplementary information that is submitted. When a submission is incomplete, the Division will specify the information needed to complete the submission and will give the permittee 30 calendar days after receipt of the notification to provide the information. [40 CFR 63.851(b)]
 - j. The permittee shall submit any revisions of the parametric monitoring plan to the Division for approval and incorporation into Appendix B of the permit in accordance with 40 CFR 63.848(f). [401 KAR 52:020, Section 10]
 - k. Any exceedance over the particulate emission limits or opacity limits shall be reported, in writing, to the Division no later than 30 days after the exceedance. [401 KAR 52:020, Section 10]
 - i. Following initial notification of an exceedance, monthly reports shall be submitted, by the fifteenth of each month, to the Division's Owensboro Regional Office.
 - ii. Monthly reports shall contain individual emission units' monthly and 12-month rolling PM/PM₁₀ emission estimates and a summation of all emission units' 12-month rolling PM₁₀ emissions and results of opacity observations.
 - iii. Monthly reports shall be submitted until 12 consecutive months have passed without any exceedance of limits.
 - l. The permittee shall submit to the Division quarterly ambient monitoring data reports. If the maximum 24-hour average primary standard or any of the secondary standards for HF as defined in 401 KAR 53:010, Appendix A, are exceeded more than once annually, than any subsequent exceedance is a violation. Any exceedance of the secondary standards for TF as defined in 401 KAR 53:010, Appendix A, is a violation. [401 KAR 53:010]
 - m. Refer to **SECTION F** for general reporting requirements.
 - n. For Potline #5:
 - i. On and after the date specified in 40 CFR 64.7(a) by which the permittee must use monitoring that meets the requirements of 40 CFR 64, the permittee shall submit monitoring reports to the Division in accordance with **SECTION F**. [40 CFR 64.9(a)(1)]

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- ii. A report for monitoring under 40 CFR 64 shall include, at a minimum, the information required under 40 CFR 70.6(a)(3)(iii) and the following information, as applicable: [40 CFR 64.9(a)(2)]
 - 1) Summary information on the number, duration and cause (including unknown cause, if applicable) of excursions or exceedances, as applicable, and the corrective actions taken; [40 CFR 64.9(a)(2)(i)]
 - 2) Summary information on the number, duration and cause (including unknown cause, if applicable) for monitor downtime incidents (other than downtime associated with zero and span or other daily calibration checks, if applicable); and [40 CFR 64.9(a)(2)(ii)]
 - 3) A description of the actions taken to implement a QIP during the reporting period as specified in 40 CFR 64.8. Upon completion of a QIP, the permittee shall include in the next summary report documentation that the implementation of the plan has been completed and reduced the likelihood of similar levels of excursions or exceedances occurring. [40 CFR 64.9(a)(2)(iii)]
- iii. The threshold for requiring the implementation of a QIP is an accumulation of exceedances or excursions exceeding 5 percent duration of a pollutant-specific emissions unit's operating time for a semiannual reporting period. [40 CFR 64.8(a)]
- iv. Refer to Appendix A for reporting requirements under 40 CFR 64.

7. Specific Control Operating Conditions:

- a. ***Monitoring parameters for emission control devices.*** The permittee shall install, operate, calibrate, and maintain a continuous parameter monitoring system for each emission control device. The permittee shall submit for approval by the Division a description of the parameter(s) to be monitored, the operating limits, and the monitoring frequency to ensure that the control device is being properly operated and maintained. An explanation of the criteria used for selection of the parameter(s), the operating limits, and the monitoring frequency, including how these relate to emission control also shall be submitted to the Division. Except as provided in 40 CFR 63.848(l), the following monitoring devices shall be installed: [40 CFR 63.848(f)]
 - i. For dry alumina scrubbers, devices for the measurement of alumina flow and air flow; [40 CFR 63.848(f)(1)]
- b. The permittee shall visually inspect the exhaust stack(s) using Method 22 on a twice daily basis (at least 4 hours apart) for evidence of any visible emissions indicating abnormal operations and, shall initiate corrective actions within 1 hour of a visible emissions inspection that indicates abnormal operation. Corrective actions shall include, at a minimum, isolating, shutting down and conducting an internal inspection of the compartment that is the source of the visible emissions that indicate abnormal operations. [40 CFR 63.848(g)(3)]
- c. ***Corrective action.*** If a monitoring device for a primary control device measures an operating parameter outside the limit(s) established pursuant to 40 CFR 63.847(h) or if visible emissions indicating abnormal operation are observed from the exhaust stack of a control device during a daily inspection, the permittee shall initiate corrective action procedures within 1 hour. Failure to initiate the corrective action procedures within 1

SECTION B - EMISSION POINTS, EMISSION UNITS, APPLICABLE REGULATIONS, AND OPERATING CONDITIONS (CONTINUED)

hour or to take the necessary corrective actions to remedy the problem is a violation. [40 CFR 63.848(h)]

- d. ***Exceedances.*** If the limit for a given operating parameter associated with monitoring a specific control device is exceeded six (6) times in any semiannual reporting period, then any subsequent exceedance in that reporting period is a violation. For the purpose of determining the number of exceedances, no more than one exceedance shall be attributed in any given 24-hour period. [40 CFR 63.848(i)]
- e. The design capture efficiency for the collection system on potline 5 shall equal, or exceed, 98 percent. [401 KAR 51:017]
- f. Refer to **SECTION E.**

8. Compliance Schedule:
Refer to **SECTION I.**

SECTION B - EMISSION POINTS, EMISSION UNITS, APPLICABLE REGULATIONS, AND OPERATING CONDITIONS (CONTINUED)

Subject Item E - 40 CFR 63, Subpart LL - Anode Bake Furnaces (1, 2, & 3)

EP	Group	Equip. Desig.	Cons. Date	Description	Primary Fuel	Heat Input Capacity (MMBtu)	Maximum Capacity* (Units/yr)	Control Equipment
EMISSION GROUP 33								
41b	33	3301	1969	Anode Bake Furnace #1	Natural Gas	40.278	233,000 tons green anode; 106,800 tons packing coke; 855.57 MMscf natural gas; 675,000 gal propane	Dry Alumina Scrubber 33-0140
		3302	1969	Anode Bake Furnace #2	Natural Gas	40.278		
		3307	1999	Anode Bake Furnace #3	Natural Gas	27.332		

*Limited by an operating limitation below.

APPLICABLE REGULATIONS:

401 KAR 51:017, *Prevention of significant deterioration of air quality*, applicable with respect to PM, PM₁₀, PM_{2.5}, SO₂, CO, and Fluorides.

401 KAR 59:010, *New process operations*, applicable with respect to each affected facility or source, associated with a process operation, which commenced on or after July 2, 1975.

401 KAR 61:020, *Existing process operations*, applicable with respect to each affected facility or source, associated with a process operation, which commenced before July 2, 1975.

40 KAR 63:002, Section 2(4)(bb), 40 C.F.R. 63.840 through 63.855, Tables 1 through 4, and Appendix A (Subpart LL), *National Emission Standards for Hazardous Air Pollutants for Primary Aluminum Reduction Plants*

40 CFR 64, *Compliance Assurance Monitoring*, applicable to EP 41b with respect to PM/PM₁₀. Refer to Appendix A-3.

PRECLUDED REGULATIONS:

401 KAR 51:017, *Prevention of significant deterioration of air quality*, Sections 8 to 16, for VOC and NO_x.

1. Operating Limitations:

- a. At all times, the permittee shall operate and maintain any affected source, including associated air pollution control equipment and monitoring equipment, in a manner consistent with safety and good air pollution control practices for minimizing emissions. Determination of whether such operation and maintenance procedures are being used will be based on information available to the Administrator which may include, but is not limited to, monitoring results, review of operation and maintenance procedures, review of operation and maintenance records and inspection of the source. [40 CFR 63.843(f) and 63.844(f)]
- b. ***Startup of anode bake furnaces.*** The permittee shall develop a written startup plan as described in 40 CFR 63.847(l)(1) through (4), to be followed during startup periods of bake furnaces. Compliance with the startup plan shall be demonstrated through site inspection(s) and review of site records by the Division. The written startup plan shall contain specific procedures to be followed during startup periods of anode bake furnaces, including the following: [40 CFR 63.847(l)]

SECTION B - EMISSION POINTS, EMISSION UNITS, APPLICABLE REGULATIONS, AND OPERATING CONDITIONS (CONTINUED)

- i. A requirement to develop an anode bake furnace startup schedule. [40 CFR 63.847(l)(1)]
 - ii. Records of time, date, duration of anode bake furnace startup and any nonroutine actions taken during startup of the furnaces. [40 CFR 63.847(l)(2)]
 - iii. A requirement that the associated emission control system be operating within normal parametric limits prior to startup of the anode bake furnace. [40 CFR 63.847(l)(3)]
 - iv. A requirement to take immediate actions to stop the startup process as soon as practicable and continue to comply with 40 CFR 63.843(f) or 40 CFR 63.844(f) if the associated emission control system is off line at any time during startup. The anode bake furnace restart may resume once the associated emission control system is back on line and operating within normal parametric limits. [40 CFR 63.847(l)(4)]
- c. The permittee shall not exceed a combined green anode processing rate of 233,000 tons per year based upon a rolling 12-month total. [401 KAR 51:017]
 - d. The permittee shall not exceed a combined packing coke consumption rate of 106,800 tons per year based upon a rolling 12-month total. [401 KAR 51:017]
 - e. The permittee shall not exceed a combined natural gas usage rate for Anode Bake Furnaces #1, #2, and #3 of 855.57 MMscf per year based on a rolling 12-month total. [401 KAR 51:017]
 - f. The permittee shall not exceed a combined propane usage rate for Anode Bake Furnaces #1, #2, and #3 of 675,000 gallons per year based on a rolling 12-month total. [401 KAR 51:017]
 - g. The petroleum coke used to make the green anodes shall not exceed 3.0 percent sulfur by weight and the pitch shall not exceed 0.80 percent sulfur by weight as measured by the standard ASTM method, an approved alternative method, or by vendor Certificate of Analysis. [401 KAR 51:017]
 - h. The volatile organic matter (VOM) contents of the petroleum coke shall be calculated by subtracting the coking value of the as-received material from one (1) [(1 - coking value = VOM content)]. The VOM content of the pitch shall be determined from information submitted by the supplier. Performance tests must be performed prior to changes in the coking value. [401 KAR 51:017]

Compliance Demonstration Method:

Refer to **4. Specific Monitoring Requirements**, **5. Specific Recordkeeping Requirements**, and **6. Specific Reporting Requirements**.

2. Emission Limitations:

- a. For Anode Bake Furnaces #1 and #2, the permittee shall not discharge or cause to be discharged into the atmosphere any emissions of TF, POM, PM or mercury in excess of the following limits: [40 CFR 63.843(c)]

SECTION B - EMISSION POINTS, EMISSION UNITS, APPLICABLE REGULATIONS, AND OPERATING CONDITIONS (CONTINUED)

- i. **TF limit.** Emissions of TF shall not exceed 0.20 lb/ton (0.10 kg/Mg) of green anode; [40 CFR 63.843(c)(1)]
 - ii. **POM limit.** Emissions of POM shall not exceed 0.18 lb/ton (0.09 kg/Mg) of green anode; [40 CFR 63.843(c)(2)]
 - iii. **PM limit.** Emissions of PM shall not exceed 0.20 lb/ton (0.10 kg/Mg) of green anode; and [40 CFR 63.843(c)(3)]
 - iv. **Mercury limit.** Emissions of mercury (Hg) shall not exceed 1.7 µg/dscm. [40 CFR 63.843(c)(4)]
- b. For Anode Bake Furnace #3, the permittee shall not discharge or cause to be discharged into the atmosphere any emissions of TF, PM, POM or mercury in excess of the following: [40 CFR 63.844(c)]
- i. **TF limit.** Emissions of TF shall not exceed 0.02 lb/ton (0.01 kg/Mg) of green anode; [40 CFR 63.844(c)(1)]
 - ii. **POM limit.** Emissions of POM shall not exceed 0.05 lb/ton (0.025 kg/Mg) of green anode; [40 CFR 63.844(c)(2)]
 - iii. **PM limit.** Emissions of PM shall not exceed 0.20 lb/ton (0.10 kg/Mg) of green anode; and [40 CFR 63.843(c)(3)]
 - iv. **Mercury limit.** Emissions of mercury (Hg) shall not exceed 1.7 µg/dscm. [40 CFR 63.843(c)(4)]
- c. The permittee may average TF emissions from Anode Bake Furnaces #1 & #2 and demonstrate compliance with the limits in Table 4 of 40 CFR 63, Subpart LL using the procedures in 40 CFR 63.846(c)(1) and (2). The permittee also may average POM emissions from Anode Bake Furnaces #1 & #2 and demonstrate compliance with the limits in Table 4 of 40 CFR 63, Subpart LL using the procedures in 40 CFR 63.846(c)(1) and (2). The permittee also may average PM emissions from Anode Bake Furnaces #1, #2, and #3 and demonstrate compliance with the limits in Table 4 of 40 CFR 63, Subpart LL using the procedures in 40 CFR 63.846(c)(1) and (2). [40 CFR 63.846(c)]
- i. Annual emissions of TF, POM and/or PM from a given number of anode bake furnaces making up each averaging group shall not exceed the applicable emission limit in Table 4 of 40 CFR 63, Subpart LL in any one year; and [40 CFR 63.846(c)(1)]
 - ii. To determine compliance with the applicable emission limit in Table 4 of 40 CFR 63, Subpart LL for anode bake furnaces, the permittee shall determine TF, POM and/or PM emissions from the control device for each anode bake furnace at least once each year using the procedures and methods in 40 CFR 63.847 and 63.849. [40 CFR 63.846(c)(2)]

Compliance Demonstration Method:

The permittee shall determine compliance with the applicable TF, POM, PM or Hg emission limits using the following equations and procedures: [40 CFR 63.847(e)]

- A. Compute the emission rate (E_b) of TF, POM or PM from each anode bake furnace using the following equation: [40 CFR 63.847(e)(3)]

SECTION B - EMISSION POINTS, EMISSION UNITS, APPLICABLE REGULATIONS, AND OPERATING CONDITIONS (CONTINUED)

$$E_b = \frac{(C_s \times Q_{sd})}{(P_b \times K)}$$

Where:

E_b = emission rate of TF, POM or PM, lb/ton (kg/mg) of green anodes;

C_s = concentration of TF, POM or PM, mg/dscf (mg/dscm);

Q_{sd} = volumetric flow rate of effluent gas, dscf/hr (dscm/hr);

P_b = quantity of green anode material placed in the furnace, ton/hr (mg/hr); and

K = conversion factor, 453,600 mg/lb (106 mg/kg).

- B. Compliance with the anode bake furnace Hg emission standard is demonstrated if the Hg concentration of the exhaust from the anode bake furnace control device is equal to or less than the applicable concentration standard in 40 CFR 63.843(c)(4) or 40 CFR 63.844(c)(4). [40 CFR 63.847(e)(4)]
 - C. Determine the weight of the green anode material placed in the anode bake furnace using the monitoring devices required in 40 CFR 63.848(j). [40 CFR 63.847(e)(5)]
 - D. Determine the rate of green anode material introduced into the furnace by dividing the number of operating hours in the calendar month into the weight of green anode material used during the calendar month in which the performance test was conducted. [40 CFR 63.847(e)(7)]
- d. The permittee may demonstrate compliance with alternative TF and POM emission limits according to the procedures of 40 CFR 63.855. [40 CFR 63.855(a)]
- i. For TF emission limits:
 - 1) Prior to the date on which each TF emission test is required to be conducted, the permittee shall determine the applicable TF emission limit using the following equation: [40 CFR 63.855(b)(1)]

$$L_{TFC} = [(0.09 \times P_E) + (0.018 \times P_N)] / (P_E + P_N)$$

Where:

L_{TFC} = Combined emission limit for TF, lb/ton green anode material placed in the bake furnace;

P_E = Mass of green anode placed in existing Anode Bake Furnaces #1 & #2 in the twelve months preceding the compliance test, ton/year; and

P_N = Mass of green anode placed in new Anode Bake Furnace #3 in the twelve months preceding the compliance test, ton/year.
 - 2) The permittee shall not discharge, or cause to be discharged into the atmosphere, any emissions of TF in excess of the emission limits established in 40 CFR 63.855(b)(1), above. [40 CFR 63.855(b)(2)]
 - ii. For POM emission limits:
 - 1) Prior to the date on which each POM emission test is required to be conducted, the permittee shall determine the applicable POM emission limit using the following equation: [40 CFR 63.855(c)(1)]

$$L_{POMC} = [(0.17 \times P_E) + (0.045 \times P_N)] / (P_E + P_N)$$

Where:

L_{POMC} = Combined emission limit for POM, lb/ton green anode material placed in the bake furnace;

SECTION B - EMISSION POINTS, EMISSION UNITS, APPLICABLE REGULATIONS, AND OPERATING CONDITIONS (CONTINUED)

- 2) The permittee shall not discharge, or cause to be discharged into the atmosphere, any emissions of TF in excess of the emission limits established in 40 CFR 63.855(c)(1), above. [40 CFR 63.866(c)(2)]
- e. For Anode Bake Furnace #3:
- i. The permittee shall not cause, suffer, allow, or permit any continuous emission into the open air from a control device or stack associated with any affected facility which is equal to or greater than twenty (20) percent opacity. [401 KAR 59:010, Section 3(1)(a)]
 - ii. For emissions from a control device or stack the permittee shall not cause, suffer, allow or permit the emission into the open air of particulate matter from any affected facility which is in excess of the quantity specified in 401 KAR 59:010, Appendix A. [401 KAR 59:010, Section 3(2)]
 - 1) For process weight rates ≤ 0.5 tons/hour: 2.34 lbs/hour
 - 2) For process weight rates ≤ 30 tons/hour: $E'_{PMj} = 3.59P_j^{0.62}$
 - 3) For process weight rates > 30 tons/hour: $E'_{PMj} = 17.31P_j^{0.16}$

Where:

j = Emission Unit;

E'_{PMj} = The allowable particulate emission rate for unit j in pounds/hour;

P_j = The process weight rate in tons/hour

Compliance Demonstration Method:

Compliance with the 401 KAR 59:010 mass emission standard is assumed when complying with the 401 KAR 51:017 PM emission limitations. Refer to **4. Specific Monitoring Requirements** and **5. Specific Recordkeeping Requirements** for compliance with the opacity standard.

- f. For Anode Bake Furnaces #1 and #2:
- i. The permittee shall not cause, suffer, allow, or permit any continuous emission into the open air from a control device or stack associated with any affected facility which is equal to or greater than forty (40) percent opacity. [401 KAR 61:020, Section 3(1)(a)]
 - ii. For emissions from a control device or stack the permittee shall not cause, suffer, allow or permit the emission into the open air of particulate matter from any affected facility which is in excess of the quantity specified in 401 KAR 61:020, Appendix A: [401 KAR 61:020, Section 3(2)(a)]
 - 1) For process weight rates ≤ 0.5 tons/hour: 2.58 lbs/hour
 - 2) For process weight rates ≤ 30 tons/hour: $E'_{PMj} = 4.10P_j^{0.67}$
 - 3) For process weight rates > 30 tons/hour: $E'_{PMj} = 55.0P_j^{0.11} - 40$

Where:

j = Emission Unit;

E'_{PMj} = The allowable particulate emission rate for unit j in pounds/hour;

P_j = The process weight rate in tons/hour

SECTION B - EMISSION POINTS, EMISSION UNITS, APPLICABLE REGULATIONS, AND OPERATING CONDITIONS (CONTINUED)**Compliance Demonstration Method:**

Compliance with the 401 KAR 61:020 mass emission standard is assumed when complying with the 401 KAR 51:017 PM emission limitations. Refer to **4. Specific Monitoring Requirements** and **5. Specific Recordkeeping Requirements** for compliance with the opacity standard.

- g. The permittee shall not allow the combined emissions of PM from the Anode Bake Furnaces #1, #2, and #3 to exceed 3.575 lbs/hr, based on a monthly average. [401 KAR 51:017]
- h. The permittee shall not allow the combined emissions of PM₁₀ from the Anode Bake Furnaces #1, #2, and #3 to exceed 3.575 lbs/hr, based on a monthly average. [401 KAR 51:017]
- i. The permittee shall not allow the combined emissions of CO from the Anode Bake Furnaces #1, #2, and #3 to exceed 219.246 lbs/hr, based on a monthly average. [401 KAR 51:017]
- j. The permittee shall not allow the combined emissions of fluoride (F) from the Anode Bake Furnaces #1, #2, and #3 to exceed 3.220 lbs/hr, based on a monthly average. [401 KAR 51:017]
- k. The permittee shall not allow the combined emissions of hydrogen fluoride (HF) from the Anode Bake Furnaces #1, #2, and #3 to exceed 0.697 lbs/hr, based on a monthly average. [401 KAR 51:017]
- l. The permittee shall not allow the combined emissions of VOC from the Anode Bake Furnaces #1, #2, and #3 to exceed 5.461 lbs/hr, based on a monthly average. [To preclude 401 KAR 51:017, Sections 8 to 16]

Compliance Demonstration Method:

Compliance with the applicable emission limitations for PM, PM₁₀, CO, F, HF, and VOC shall be demonstrated through the use of the following equation:

$$E_p = \frac{[P \times EF_c]}{H}$$

Where:

E_p = Emission rate of PM, PM₁₀, CO, F, HF, or VOC in lb/hr

P = Monthly production rate in tons/month; which is the sum of daily totals

EF_c = Combined emission factor for PM, PM₁₀, CO, F, HF, or VOC calculated using the results of the most recent performance test or approved in the most recent permit revision (lb/ton)

H = Monthly hours of operation

*Combined emissions include emissions from natural gas and green anode production from all of the bake furnaces.

SECTION B - EMISSION POINTS, EMISSION UNITS, APPLICABLE REGULATIONS, AND OPERATING CONDITIONS (CONTINUED)

Also refer to **3. Testing requirements** (i), **4. Specific Monitoring Requirements**, and **5. Specific Recordkeeping Requirements**.

- m. The permittee shall not allow the combined emissions of SO₂ from the Anode Bake Furnaces #1, #2, and #3 to exceed 139.959 lbs/hr, based on a monthly average. [401 KAR 51:017]

Compliance Demonstration Method:

Compliance with the emission limitation for SO₂ shall be demonstrated through the use of the following equation:

$$E_s = \frac{(P \times A_p \times S_p \times C)}{H} + \frac{(N \times EF_s)}{H}$$

Where:

E_s = Emission rate of SO₂ in lb/hr

P = Monthly green anodes processed in tons/month; which is the sum of daily totals

A_p = Weighted average pitch percentage of green anodes each month

S_p = Weighted Average sulfur percentage in the pitch received from the supplier each month

C = Conversion factor to convert S to SO₂, 2

H = Monthly hours of operation

N = Amount of natural gas consumed per month in MMscf/month

EF_s = AP-42 Emission factor for natural gas combustion, 0.06 lb/MMscf

Refer to **4. Specific Monitoring Requirements** for the sulfur content requirements for raw material (coke and pitch) and baked anode. Sulfur content must be determined for each batch produced via an ASTM approved method. Records shall be maintained for each batch produced including hours of batch operation, mass of sulfur input and mass of sulfur in the baked anode.

- n. For NO_x emission limitations (from the existing ovens natural gas, pitch and coke combustion, expressed as NO₂), refer to **SECTION D**. Also refer to **3. Testing Requirements** (i). [Self-Imposed to preclude 401 KAR 51:017, Sections 8 to 16]

3. Testing Requirements:

- a. **Test plan.** The permittee shall prepare a site-specific test plan prior to the initial performance test according to the requirements of 40 CFR 63.7(c). The test plan shall include procedures for conducting the initial performance test and for subsequent performance tests required in 40 CFR 63.848 for emission monitoring. In addition to the information required by 40 CFR 63.7, the test plan shall include: [40 CFR 63.847(b)]
- Procedures to ensure a minimum of three runs are performed annually for the primary control system for each source; [40 CFR 63.847(b)(1)]
 - Procedures for sampling single stacks associated with multiple anode bake furnaces; [40 CFR 63.847(b)(4)]

SECTION B - EMISSION POINTS, EMISSION UNITS, APPLICABLE REGULATIONS, AND OPERATING CONDITIONS (CONTINUED)

- b. Following approval of the site-specific test plan, the permittee shall conduct a performance test to demonstrate initial compliance according to the procedures in 40 CFR 63.847(d). If a performance test has been conducted on the primary control system for the anode bake furnaces within the 12 months prior to the compliance date, the results of that performance test may be used to demonstrate initial compliance. The permittee shall conduct the performance test: [40 CFR 63.847(c)]
 - i. For Anode Bake Furnaces #1, #2, and #3, during the first month following: [40 CFR 63.847(c)(1)]
 - 1) October 17, 2016 for PM testing. [40 CFR 63.847(a)(2)(ii)]
 - 2) October 16, 2017 for Mercury testing. [40 CFR 63.847(a)(2)(iii)]
 - ii. For Anode Bake Furnaces #1 and #2, during the first month following October 7, 1999 for TF and POM testing. [40 CFR 63.847(c)(1)]
 - iii. For Anode Bake Furnace #3 TF and POM testing, by the 45th day from the start of the second anode bake cycle (but no later than the 180th day from the startup of the anode bake furnace). [40 CFR 63.847(c)(2)(ii)]
 - iv. For an anode bake furnace that was shut down at the time compliance would have otherwise been required and is subsequently restarted, by the 45th day from the start of the second anode bake cycle (but no later than the 180th day from the startup of the anode bake furnace). [40 CFR 63.847(c)(3)(ii)]
- c. ***Performance test requirements.*** The initial performance test and all subsequent performance tests shall be conducted in accordance with the applicable requirements of the general provisions in 40 CFR 63, Subpart A, the approved test plan, and the procedures in 40 CFR 63.847. Performance tests shall be conducted under such conditions as the Administrator specifies to the permittee based on representative performance of the affected source for the period being tested. Upon request, the permittee shall make available to the Administrator such records as may be necessary to determine the conditions of performance tests. [40 CFR 63.847(d)]
- d. ***Previous control device tests.*** If the permittee has performed more than one test of primary emission control device(s) for a bake furnace during the previous consecutive 12 months, the average of all runs performed in the previous 12-month period shall be used to determine the contribution from the primary emission control system. [40 CFR 63.847(d)(3)]
- e. ***TF, POM, PM and Hg emissions from anode bake furnaces.*** For each anode bake furnace, the permittee shall measure and record the emission rate of TF, POM, PM and Hg exiting the exhaust stacks(s) of the primary emission control system. In accordance with 40 CFR 63.847(e)(3) and (4), the permittee shall compute and record the average of at least three runs each year to determine compliance with the applicable emission limits for TF, POM, PM and Hg. Compliance is demonstrated when the emission rates of TF, POM, PM and Hg are equal to or less than the applicable TF, POM, PM and Hg emission limits in 40 CFR 63.843, 40 CFR 63.844 or 40 CFR 63.846. [40 CFR 63.847(d)(4)]
- f. ***TF, PM, Hg and POM emissions from anode bake furnaces.*** Using the procedures in 40 CFR 63.847 and in the approved test plan, the permittee shall determine TF, PM, Hg and

SECTION B - EMISSION POINTS, EMISSION UNITS, APPLICABLE REGULATIONS, AND OPERATING CONDITIONS (CONTINUED)

POM emissions from each anode bake furnace on an annual basis. The permittee shall compute and record the annual average of TF, PM, Hg and POM emissions from at least three runs to determine compliance with the applicable emission limits. A minimum of four dscm per run shall be collected for monitoring of Hg emissions. The permittee shall include all valid runs in the annual average. [40 CFR 63.848(c)]

- g. The permittee shall use the following reference methods to determine compliance with the applicable emission limits for TF, POM, PM, Hg, and conduct visible emissions observations: [40 CFR 63.849(a)]
 - i. Method 1 in 40 CFR 60, Appendix A for sample and velocity traverses; [40 CFR 63.849(a)(1)]
 - ii. Method 2 in 40 CFR 60, Appendix A for velocity and volumetric flow rate; [40 CFR 63.849(a)(2)]
 - iii. Method 3 in 40 CFR 60, Appendix A for gas analysis; [40 CFR 63.849(a)(3)]
 - iv. Method 13A or Method 13B in 40 CFR 60, Appendix A, or an approved alternative, for the concentration of TF where stack or duct emissions are sampled; [40 CFR 63.849(a)(4)]
 - v. Method 315 in 40 CFR 63, Appendix A or an approved alternative method for the concentration of POM where stack or duct emissions are sampled; [40 CFR 63.849(a)(6)]
 - vi. Method 5 in 40 CFR 60, Appendix A or an approved alternative method for the concentration of PM where stack or duct emissions are sampled; [40 CFR 63.849(a)(8)]
 - vii. Method 29 in Appendix A to 40 CFR 60 or an approved alternative method for the concentration of mercury where stack or duct emissions are sampled; [40 CFR 63.849(a)(10)]
 - viii. Method 22 in 40 CFR 60, Appendix A or an approved alternative method for determination of visual emissions; [40 CFR 63.849(a)(12)]
- h. The permittee may use an alternative test method for TF or POM emissions providing: [40 CFR 63.849(e)]
 - i. The permittee has already demonstrated the equivalency of the alternative method for a specific plant and has received previous approval from the U.S. EPA or the Division for TF or POM measurements using the alternative method; or [40 CFR 63.849(e)(1)]
 - ii. The permittee demonstrates to the satisfaction of the Division that the results from the alternative method meet the criteria specified in 40 CFR 63.848(d)(1) and (d)(3) through (d)(6). The results from the alternative method shall be based on simultaneous sampling using the alternative method and the following reference methods: [40 CFR 63.849(e)(2)]
 - 1) For TF, Methods 13 and 14 or Method 14A in 40 CFR 60, Appendix A; or [40 CFR 63.849(e)(2)(i)]
 - 2) For POM, Method 315 in 40 CFR 63, Appendix A and Method 14 in 40 CFR 60, Appendix A. [40 CFR 63.849(e)(2)(ii)]
- i. The following compliance tests shall be performed to determine compliance with all emission limitations listed above and to develop emission factors: [401 KAR 51:017]

SECTION B - EMISSION POINTS, EMISSION UNITS, APPLICABLE REGULATIONS, AND OPERATING CONDITIONS (CONTINUED)

- i. The permittee shall conduct performance testing according to Reference Method 5 and Reference Method 201A/202 for particulate emissions (filterable PM, PM₁₀, PM_{2.5} and Condensable Particulate) once every 12 months, no later than 30 days after the anniversary date of the initial performance test (June 21, 2000). These tests can be performed simultaneously with the testing required by 40 CFR 63, Subpart LL.
 - ii. The permittee shall perform testing according to Reference Method 6 for sulfur dioxide (SO₂) emissions once every 12 months, no later than 30 days after the anniversary date of the initial performance test (June 21, 2000).
 - iii. The permittee shall perform testing according to Reference Method 25 or 25A for VOC emissions once every 12 months, no later than 30 days after the anniversary date of the initial performance test (June 21, 2000).
 - iv. The permittee shall perform testing according to Reference Method 7 or 7E for NO_x emissions once within the 5 year permit term of permit V-16-011.
 - v. The permittee shall perform testing according to Reference Method 10, 10A, or 10B for CO emissions once every 12 months, no later than 30 days after the anniversary date of the initial performance test (June 21, 2000).
- j. The permittee shall perform testing annually on those pollutants that were less than or equal to 75% of the limitations in **2. Emission Limitations (g), (h), (k), and (l)** during the previous permit period. If the results of the annual testing remain less than or equal to 75% of the permit limit, then no additional testing of those pollutants is required for the duration of the current permit. If the result(s) of testing are greater than 75% of the permit limit, or if no testing was performed on a pollutant during the previous permit term, then annual testing will commence until two consecutive annual tests demonstrate that the emissions of SO₂, CO, VOC, PM and PM₁₀ are less than or equal to 75% of the standards specified herein. No additional testing shall be required for the term of this permit once two consecutive tests have met the criteria.
- k. The amount of green anodes baked and the amount of packing coke used shall be determined and recorded during each performance test of the anode bake furnaces.
- l. Pursuant to 401 KAR 61:005, Section 2(2), 401 KAR 59:005, Section 2(2), and 401 KAR 50:045, Section 1, performance testing using the reference methods specified in 401 KAR 50:015 shall be conducted if required by the Cabinet.

4. Specific Monitoring Requirements:

- a. *Selection of monitoring parameters.* The permittee shall determine the operating limits and monitoring frequency for each control device that is to be monitored as required in 40 CFR 63.848(f). [40 CFR 63.847(h)]
 - i. For anode bake furnaces, the permittee shall determine upper and/or lower operating limits, as appropriate, for each monitoring device for the emission control system from the values recorded during each of the runs performed during the initial performance test and from historical data from previous performance tests conducted by the methods specified in 40 CFR 63, Subpart LL. [40 CFR 63.847(h)(1)]
 - ii. The permittee may redetermine the upper and/or lower operating limits, as appropriate, based on historical data or other information and submit an application to

SECTION B - EMISSION POINTS, EMISSION UNITS, APPLICABLE REGULATIONS, AND OPERATING CONDITIONS (CONTINUED)

the Division to change the applicable limit(s). The redetermined limits shall become effective upon approval by the Division. [40 CFR 63.847(h)(3)]

- b. ***Weight of green anodes.*** The permittee shall install, operate, and maintain a monitoring device to determine the weight of green anode material placed in the anode bake furnace. The weight of green anode material may be determined by monitoring the weight of all anodes or by monitoring the number of anodes placed in the furnace and determining an average weight from measurements of a representative sample of anodes. [40 CFR 63.848(j)]
- c. The permittee shall monitor the monthly and 12-month rolling total natural gas and propane usage for each of the Anode Bake Furnaces. [401 KAR 52:020, Section 10]
- d. The permittee shall monitor the monthly and 12-month rolling total throughputs of green anodes and packing coke to assure compliance with the operational limitations in **1. Operating Limitations.** [401 KAR 52:020, Section 10]
- e. The sulfur contents of the coke and the pitch shall be monitored and determined with an ASTM standard, alternative method, or utilize vendor Certificates of Analysis. Each method shall be approved by the Division. The method used to determine sulfur content of coke shall assure that the average percent sulfur by weight of each shipment of coke will not exceed 3.0 percent. The percent sulfur by weight of the pitch shall be determined by weekly ASTM testing, alternative sampling of each of the pitch storage tank, or by vendor Certificate of Analysis. The method used to determine sulfur content of pitch shall assure that the average percent sulfur by weight of each shipment of pitch will not exceed 0.8 percent. [401 KAR 52:020, Section 10]
- f. The permittee shall monitor the VOM contents of the pitch and petroleum coke. [401 KAR 52:020, Section 10]
- g. The permittee shall perform a qualitative visual observation of the opacity of emissions at the stack twice daily while the affected facility is operating. If visible emissions from a stack or roof monitor are observed (not including condensed water in the plume), the permittee shall determine the opacity using U.S. EPA Reference Method 9. In lieu of determining the opacity using U.S. EPA Reference Method 9, the permittee shall immediately perform a corrective action which results in no visible emissions (not including condensed water in the plume). The Method 22 observations performed for 40 CFR 63, Subpart LL may also be used to meet the qualitative requirement. [401 KAR 52:020, Section 10]
- h. The permittee shall monitor the monthly and 12-month rolling total emissions of NO_x and VOC using fuel usage and green anode process rates in order to confirm that the annual emissions for NO_x and VOC do not exceed the limits specified in this permit. [To preclude 401 KAR 51:017]

SECTION B - EMISSION POINTS, EMISSION UNITS, APPLICABLE REGULATIONS, AND OPERATING CONDITIONS (CONTINUED)

- i. The permittee shall continue to operate and maintain ambient air monitoring equipment for the detection of fluorides. This equipment shall be located at sites specified by the Division. [401 KAR 52:020, Section 10]
- j. To provide reasonable assurance that the particulate matter (PM and PM₁₀) emission limitations are being met, the permittee shall monitor the monthly and 12-month rolling amount and type of process weight added to each emissions unit and the continuous air flow rate and pressure drop across each control device. [401 KAR 52:020, Section 10]
- k. The permittee shall monitor the monthly and 12-month rolling total emissions of PM, PM₁₀, SO₂, CO, F, HF, NO_x, and VOC. [401 KAR 52:020, Section 10]
- l. The permittee shall install, operate, calibrate, and maintain a continuous monitoring system for the control equipment according to the approved parametric monitoring plan, which is located in Appendix B to the permit, as provided in 40 CFR 63.848(f). [401 KAR 52:020, Section 10]
- m. Refer to **SECTION F** for general monitoring requirements.
- n. For Anode Bake Furnaces #1-3, refer to Appendix A for CAM requirements pursuant to 40 CFR 64.

5. Specific Recordkeeping Requirements:

- a. The permittee shall maintain files of all information (including all reports and notifications) required by 40 CFR 63.10(b) and by 40 CFR 63, Subpart LL. [40 CFR 63.850(e)]
- b. The permittee shall retain each record for at least 5 years following the date of each occurrence, measurement, maintenance, corrective action, report, or record. The most recent 2 years of records shall be retained at the facility. The remaining 3 years of records may be retained offsite; [40 CFR 63.850(e)(1)]
- c. The permittee may retain records on microfilm, on a computer, on computer disks, on magnetic tape, or on microfiche; [40 CFR 63.850(e)(2)]
- d. The permittee may report required information on paper or on a labeled computer disc using commonly available and compatible computer software; and [40 CFR 63.850(e)(3)]
- e. In addition to the general records required by 40 CFR 63.10(b), the permittee shall maintain records of the following information: [40 CFR 63.850(e)(4)]
 - i. Daily production rate of green anode material placed in the anode bake furnace; [40 CFR 63.850(e)(4)(ii)]
 - ii. The current implementation plan for emission averaging and any subsequent amendments; [40 CFR 63.850(e)(4)(ix)]
 - iii. Records, such as a checklist or the equivalent, demonstrating that the daily visual inspection of the exhaust stack for each control device has been performed as

SECTION B - EMISSION POINTS, EMISSION UNITS, APPLICABLE REGULATIONS, AND OPERATING CONDITIONS (CONTINUED)

- required in 40 CFR 63.848(g), including the results of each inspection; [40 CFR 63.850(e)(4)(xi)]
- iv. Records documenting the corrective actions taken when the limit(s) for an operating parameter established under 40 CFR 63.847(h) were exceeded or when visible emissions indicating abnormal operation were observed from a control device stack during a daily inspection required under 40 CFR 63.848(g). [40 CFR 63.850(e)(4)(xiii)]
 - v. Records documenting the portion of TF that is measured as particulate matter and the portion that is measured as gaseous when the particulate and gaseous fractions are quantified separately using an approved test method; [40 CFR 63.850(e)(4)(xv)]
 - vi. Records of the occurrence and duration of each malfunction of operation (i.e. process equipment) or the air pollution control equipment and monitoring equipment; and [40 CFR 63.850(e)(4)(xvi)]
 - vii. Records of actions taken during periods of malfunction to minimize emissions in accordance with 40 CFR 63.843(f) and 63.844(f), including corrective actions to restore malfunctioning process and air pollution control and monitoring equipment to its normal or usual manner of operation. [40 CFR 63.850(e)(4)(xvii)]
- f. The permittee shall maintain records of the following: [401 KAR 52:020, Section 10]
- i. Monthly and 12-month rolling throughput;
 - ii. A log of the qualitative visual observations made as specified in **4. Specific Monitoring Requirements** including the date, time, initials of observer, whether any emissions were observed (yes/no), and any U.S. EPA Reference Method 9 readings taken;
 - iii. Monthly hours of operation;
 - iv. Records of sulfur contents of coal and pitch from standard ASTM method, an approved alternative method, or by vendor Certificate of Analysis per barge shipment basis;
 - v. Records of ambient air monitoring results for fluorides;
 - vi. Records of calibration for all monitoring devices;
 - vii. Monthly and 12-month rolling individual and combined total emissions of PM, PM₁₀, SO₂, CO, F, HF, NO_x, and VOC;
 - viii. Records of violations of the ambient air standards for total and gaseous fluorides as prescribed in 401 KAR 53:010.
- g. The permittee shall record the occurrence, duration, cause and any corrective action taken for any incident or malfunction that occurs that causes or might cause an exceedance of the particulate emission or opacity standard when an emission unit is in operation. [401 KAR 52:020, Section 10]
- h. The permittee shall maintain records of the current parametric monitoring plan submitted to the Division in accordance with 40 CFR 63.848(f). [401 KAR 52:020, Section 10]
- i. Refer to **SECTION F** for general recordkeeping requirements.
- j. For Anode Bake Furnaces #1-3:

SECTION B - EMISSION POINTS, EMISSION UNITS, APPLICABLE REGULATIONS, AND OPERATING CONDITIONS (CONTINUED)

- i. The permittee shall comply with the recordkeeping requirements specified in **SECTION F**. The permittee shall maintain records of monitoring data, monitor performance data, corrective actions taken, any written quality improvement plan required pursuant to 40 CFR 64.8 and any activities undertaken to implement a quality improvement plan, and other supporting information required to be maintained under 40 CFR 64 (such as data used to document the adequacy of monitoring, or records of monitoring maintenance or corrective actions). [40 CFR 64.9(b)(1)]
- ii. Instead of paper records, the permittee may maintain records on alternative media, such as microfilm, computer files, magnetic tape disks, or microfiche, provided that the use of such alternative media allows for expeditious inspection and review, and does not conflict with other applicable recordkeeping requirements. [40 CFR 64.9(b)(1)]

6. Specific Reporting Requirements:

- a. **Implementation plan.** If the permittee chooses to average emissions, the permittee shall develop and submit an implementation plan for emission averaging to the Division for review and approval according to the following procedures and requirements: [40 CFR 63.846(d)]
 - i. **Deadlines.** The permittee shall submit the implementation plan no later than 6 months before the date that the facility intends to comply with the emission averaging limits. [40 CFR 63.846(d)(1)]
 - ii. **Contents.** The permittee shall include the following information in the implementation plan or in the application for an operating permit for all emission sources to be included in an emissions average: [40 CFR 63.846(d)(2)]
 - 1) The identification of all emission sources (anode bake furnaces) in the average; [40 CFR 63.846(d)(2)(i)]
 - 2) The assigned TF, POM and/or PM emission limit for each averaging group of anode bake furnaces; [40 CFR 63.846(d)(2)(ii)]
 - 3) The specific control technologies or pollution prevention measures to be used for each emission source in the averaging group and the date of its installation or application. If the pollution prevention measures reduce or eliminate emissions from multiple sources, the permittee shall identify each source; [40 CFR 63.846(d)(2)(iii)]
 - 4) The test plan for the measurement of TF, POM and/or PM emissions in accordance with the requirements in 40 CFR 63.847(b); [40 CFR 63.846(d)(2)(iv)]
 - 5) The operating parameters to be monitored for each control system or device and a description of how the operating limits will be determined; [40 CFR 63.846(d)(2)(v)]
 - 6) If the permittee requests to monitor an alternative operating parameter pursuant to 40 CFR 63.848(l): [40 CFR 63.846(d)(2)(vi)]
 - A. A description of the parameter(s) to be monitored and an explanation of the criteria used to select the parameter(s); and [40 CFR 63.846(d)(2)(vi)(A)]
 - B. A description of the methods and procedures that will be used to demonstrate that the parameter indicates proper operation of the control device; the

SECTION B - EMISSION POINTS, EMISSION UNITS, APPLICABLE REGULATIONS, AND OPERATING CONDITIONS (CONTINUED)

- frequency and content of monitoring, reporting, and recordkeeping requirements; and a demonstration, to the satisfaction of the Division, that the proposed monitoring frequency is sufficient to represent control device operating conditions; and [40 CFR 63.846(d)(2)(vi)(B)]
- 7) A demonstration that compliance with each of the applicable emission limit(s) will be achieved under representative operating conditions. [40 CFR 63.846(d)(2)(vii)]
- iii. **Approval criteria.** Upon receipt, the Division will review and approve or disapprove the plan or permit application according to the following criteria: [40 CFR 63.846(d)(3)]
- 1) Whether the content of the plan includes all of the information specified in 40 CFR 63.846(d)(2); and [40 CFR 63.846(d)(3)(i)]
- 2) Whether the plan or permit application presents sufficient information to determine that compliance will be achieved and maintained. [40 CFR 63.846(d)(3)(ii)]
- iv. **Prohibitions.** The Division will not approve an implementation plan or permit application containing any of the following provisions: [40 CFR 63.846(d)(4)]
- 1) Any averaging between emissions of differing pollutants or between differing sources. Emission averaging shall not be allowed between TF, POM and/or PM, and emission averaging shall not be allowed between potlines and anode bake furnaces; [40 CFR 63.846(d)(4)(i)]
- 2) The inclusion of any emission source other than an existing potline or existing anode bake furnace or the inclusion of any potline or anode bake furnace not subject to the same operating permit; or [40 CFR 63.846(d)(4)(ii)]
- 3) The inclusion of any potline or anode bake furnace while it is shut down, in the emission calculations. [40 CFR 63.846(d)(4)(iii)]
- v. **Term.** Following review, the Division will approve the plan or permit application, request changes, or request additional information. Once the Division receives any additional information requested, the Division will approve or disapprove the plan or permit application within 120 days. [40 CFR 63.846(d)(5)]
- 1) The Division will approve the plan for the term of the operating permit; [40 CFR 63.846(d)(5)(i)]
- 2) To revise the plan prior to the end of the permit term, the permittee shall submit a request to the Division; and [40 CFR 63.846(d)(5)(ii)]
- 3) The permittee may submit a request to the Division to implement emission averaging after the applicable compliance date. [40 CFR 63.846(d)(5)(iii)]
- vi. **Operation.** While operating under an approved implementation plan, the permittee shall monitor the operating parameters of each control system, keep records, and submit periodic reports as required for each source subject to 40 CFR 63, Subpart LL. [40 CFR 63.846(d)(6)]
- b. **Accuracy and calibration.** The permittee shall submit recommended accuracy requirements to the Division for review and approval. All monitoring devices required by 40 CFR 63.848 shall be certified by the permittee to meet the accuracy requirements and shall be calibrated in accordance with the manufacturer's instructions. [40 CFR 63.848(k)]

SECTION B - EMISSION POINTS, EMISSION UNITS, APPLICABLE REGULATIONS, AND OPERATING CONDITIONS (CONTINUED)

- c. **Alternative operating parameters.** The permittee may monitor alternative control device operating parameters subject to prior written approval by the Division. [40 CFR 63.848(l)]
- d. The permittee shall submit a one-time notification of startup of an anode bake furnace that was shut down for a long period and subsequently restarted. The permittee shall provide written notice to the Administrator at least 30 days before the startup. [40 CFR 63.850(a)(9)]
- e. **Performance test reports.** Within 60 days after the date of completing each performance test (as defined in 40 CFR 63.2) required by 40 CFR 63, Subpart LL, the permittee shall submit the results of the performance tests following the procedure specified in either 40 CFR 63.850(b)(1) or (b)(2). [40 CFR 63.850(b)]
 - i. For data collected using test methods supported by the EPA's Electronic Reporting Tool (ERT) as listed on the EPA's ERT Web site (<https://www.epa.gov/ert>) at the time of the test, the permittee must submit the results of the performance test to the EPA via the Compliance and Emissions Data Reporting Interface (CEDRI). CEDRI can be accessed through the EPA's Central Data Exchange (CDX) (https://cdx.epa.gov/epa_home.asp). Performance test data must be submitted in a file format generated through the use of the EPA's ERT. Alternatively, the permittee may submit performance test data in an electronic file format consistent with the extensible markup language (XML) schema listed on the EPA's ERT Web site once the XML schema is available. If the permittee claims that some of the performance test information being submitted is confidential business information (CBI), the permittee must submit a complete file generated through the use of the EPA's ERT or an alternate electronic file consistent with the XML schema listed on the EPA's ERT Web site, including information claimed to be CBI, on a compact disc, flash drive, or other commonly used electronic storage media to the EPA. The electronic media must be clearly marked as CBI and mailed to U.S. EPA/OAQPS/CORE CBI Office, Attention: Group Leader, Measurement Policy Group, MD C404-02, 4930 Old Page Rd., Durham, NC 27703. The same ERT or alternate file with the CBI omitted must be submitted to the EPA via the EPA's CDX as described earlier in this paragraph. [40 CFR 63.850(b)(1)]
 - ii. For data collected using test methods that are not supported by the EPA's ERT as listed on the EPA's ERT Web site at the time of the test, the permittee must submit the results of the performance test to the Administrator at the appropriate address listed in 40 CFR 63.13. [40 CFR 63.850(b)(2)]
 - iii. For data collected which requires summation of results from both ERT and non-ERT supported test methods in order to demonstrate compliance with an emission limit, the permittee must submit the results of the performance test(s) used to demonstrate compliance with that emission limit to the Administrator at the appropriate address listed in 40 CFR 63.13. [40 CFR 63.850(b)(3)]

SECTION B - EMISSION POINTS, EMISSION UNITS, APPLICABLE REGULATIONS, AND OPERATING CONDITIONS (CONTINUED)

- f. **Reporting.** In addition to the information required under 40 CFR 63.10 of the General Provisions, the permittee shall provide semiannual reports containing the information specified in 40 CFR 63.850(d)(1) and (2) to the Division. [40 CFR 63.850(d)]
 - i. Excess emissions report. As required by 40 CFR 63.10(e)(3), the permittee shall submit a report (or a summary report) if measured emissions are in excess of the applicable standard. The report shall contain the information specified in 40 CFR 63.10(e)(3)(v) and be submitted semiannually unless quarterly reports are required as a result of excess emissions. [40 CFR 63.850(d)(1)]
 - ii. If there was a malfunction during the reporting period, the permittee shall submit a report that includes the number, duration and a brief description for each type of malfunction which occurred during the reporting period and which caused or may have caused any applicable emission limitation to be exceeded. The report shall also include a description of actions taken by the permittee during a malfunction of an affected source to minimize emissions in accordance with 40 CFR 63.843(f) and 63.844(f), including actions taken to correct a malfunction. [40 CFR 63.850(d)(2)]
- g. All reports required by 40 CFR 63, Subpart LL not subject to the requirements in 40 CFR 63.850(b) or (c) shall be sent to the Administrator at the appropriate address listed in 40 CFR 63.13. If acceptable to both the Administrator and the permittee, these reports may be submitted on electronic media. The Administrator retains the right to require submittal of reports subject to 40 CFR 63.850(b) in paper format. [40 CFR 63.850(f)]
- h. The Division will notify the permittee in writing of the need for additional time to review the submissions in 40 CFR 63.851(a)(1) through (a)(5) or of approval or intent to deny approval of the submissions in 40 CFR 63.851(a)(1) through (a)(5) within 60 calendar days after receipt of sufficient information to evaluate the submission. The 60-day period begins after the permittee has been notified that the submission is complete. [40 CFR 63.851(a)]
 - i. The test plan in 40 CFR 63.847(b); [40 CFR 63.851(a)(1)]
 - ii. Request to change limits for operating parameters in 40 CFR 63.847(h)(3); [40 CFR 63.851(a)(2)]
 - iii. Request for an alternative method in 40 CFR 63.849(e)(2). [40 CFR 63.851(a)(5)]
- i. The Division will notify the permittee in writing whether the submission is complete within 30 calendar days of receipt of the original submission or within 30 days of receipt of any supplementary information that is submitted. When a submission is incomplete, the Division will specify the information needed to complete the submission and will give the permittee 30 calendar days after receipt of the notification to provide the information. [40 CFR 63.851(b)]
- j. Any exceedance over the monthly usage rates shall be reported in writing to the Division, no later than 30 days after the exceedance. Following initial notification of an exceedance, monthly reports shall be submitted, by the fifteenth of each month, to the Division's Owensboro Regional Office. [401 KAR 52:020, Section 10]

SECTION B - EMISSION POINTS, EMISSION UNITS, APPLICABLE REGULATIONS, AND OPERATING CONDITIONS (CONTINUED)

- k. Any exceedance of the sulfur content of the petroleum coke and pitch shall be reported to the Division no later than 30 days after the exceedance. [401 KAR 52:020, Section 10]
- l. Any exceedance of the VOM content of the pitch and/or coke, as well as any exceedance of the fuel usage rates shall be reported to the Division no later than 30 days after the exceedance. [401 KAR 52:020, Section 10]
- m. The permittee shall submit any revisions of the parametric monitoring plan to the Division for approval and incorporation into Appendix B of the permit in accordance with 40 CFR 63.848(f). [401 KAR 52:020, Section 10]
- n. Any exceedance over the monthly particulate emission limits or opacity limits shall be reported in writing to the Division, no later than 30 days after the exceedance. [401 KAR 52:020, Section 10]
 - i. Following initial notification of an exceedance, monthly reports shall be submitted, by the fifteenth of each month, to the Division's Owensboro Regional Office.
 - ii. The reports shall contain individual emission units' monthly and 12-month rolling PM/PM₁₀ emission estimates and a summation of the emission units' 12-month rolling PM/PM₁₀ emissions and results of opacity observations.
 - iii. Monthly reports shall be submitted until there have been 12 consecutive months without any exceedance.
- o. Refer to **SECTION F** for general reporting requirements.
- p. For Anode Bake Furnaces #1-3:
 - i. On and after the date specified in 40 CFR 64.7(a) by which the permittee must use monitoring that meets the requirements of 40 CFR 64, the permittee shall submit monitoring reports to the Division in accordance with **SECTION F**. [40 CFR 64.9(a)(1)]
 - ii. A report for monitoring under 40 CFR 64 shall include, at a minimum, the information required under 40 CFR 70.6(a)(3)(iii) and the following information, as applicable: [40 CFR 64.9(a)(2)]
 - 4) Summary information on the number, duration and cause (including unknown cause, if applicable) of excursions or exceedances, as applicable, and the corrective actions taken; [40 CFR 64.9(a)(2)(i)]
 - 5) Summary information on the number, duration and cause (including unknown cause, if applicable) for monitor downtime incidents (other than downtime associated with zero and span or other daily calibration checks, if applicable); and [40 CFR 64.9(a)(2)(ii)]
 - 6) A description of the actions taken to implement a QIP during the reporting period as specified in 40 CFR 64.8. Upon completion of a QIP, the permittee shall include in the next summary report documentation that the implementation of the plan has been completed and reduced the likelihood of similar levels of excursions or exceedances occurring. [40 CFR 64.9(a)(2)(iii)]

SECTION B - EMISSION POINTS, EMISSION UNITS, APPLICABLE REGULATIONS, AND OPERATING CONDITIONS (CONTINUED)

- iii. The threshold for requiring the implementation of a QIP is an accumulation of exceedances or excursions exceeding 5 percent duration of a pollutant-specific emissions unit's operating time for a semiannual reporting period. [40 CFR 64.8(a)]
- iv. Refer to Appendix A for reporting requirements under 40 CFR 64.

7. Specific Control Equipment Operating Conditions:

- a. ***Monitoring parameters for emission control devices.*** The permittee shall install, operate, calibrate, and maintain a continuous parameter monitoring system for each emission control device. The permittee shall submit for approval by the Division a description of the parameter(s) to be monitored, the operating limits, and the monitoring frequency to ensure that the control device is being properly operated and maintained. An explanation of the criteria used for selection of the parameter(s), the operating limits, and the monitoring frequency, including how these relate to emission control also shall be submitted to the Division. Except as provided in 40 CFR 63.848(l), the following monitoring devices shall be installed: [40 CFR 63.848(f)]
 - i. For dry alumina scrubbers, devices for the measurement of alumina flow and air flow; [40 CFR 63.848(f)(1)]
- b. The permittee shall visually inspect the exhaust stack(s) using Method 22 on a twice daily basis (at least 4 hours apart) for evidence of any visible emissions indicating abnormal operations and, shall initiate corrective actions within 1 hour of a visible emissions inspection that indicates abnormal operation. Corrective actions shall include, at a minimum, isolating, shutting down and conducting an internal inspection of the compartment that is the source of the visible emissions that indicate abnormal operations. [40 CFR 63.848(g)(3)]
- c. ***Corrective action.*** If a monitoring device for a primary control device measures an operating parameter outside the limit(s) established pursuant to 40 CFR 63.847(h) or if visible emissions indicating abnormal operation are observed from the exhaust stack of a control device during a daily inspection, the permittee shall initiate corrective action procedures within 1 hour. Failure to initiate the corrective action procedures within 1 hour or to take the necessary corrective actions to remedy the problem is a violation. [40 CFR 63.848(h)]
- d. ***Exceedances.*** If the limit for a given operating parameter associated with monitoring a specific control device is exceeded six (6) times in any semiannual reporting period, then any subsequent exceedance in that reporting period is a violation. For the purpose of determining the number of exceedances, no more than one exceedance shall be attributed in any given 24-hour period. [40 CFR 63.848(i)]
- e. The permittee shall install, maintain, and operate a dry alumina scrubber system on the bake furnaces, in accordance with the manufacturer's guidelines. [401 KAR 52:020, Section 10]
- f. Refer to **SECTION E.**

SECTION B - EMISSION POINTS, EMISSION UNITS, APPLICABLE REGULATIONS, AND OPERATING CONDITIONS (CONTINUED)

8. Compliance Schedule:
Refer to SECTION I.

SECTION B - EMISSION POINTS, EMISSION UNITS, APPLICABLE REGULATIONS, AND OPERATING CONDITIONS (CONTINUED)

Subject Item F - 40 CFR 63, Subpart LL – Anode Paste Production Plant

EP	Group	Equip. Desig.	Cons. Date	Description	Control Equipment	Operation Limits (Tons/Year) *
EMISSION GROUP 31						
28	31	0351	1969	Mixer 1	<i>Dry Coke Scrubber 31-0126</i>	27,222.2
		0352		Mixer 2		27,222.2
		0353		Mixer 3		27,222.2
		0354		Mixer 4		27,222.2
		0355		Mixer 5		27,222.2
		0356		Mixer 6		27,222.2
		0357		Mixer 7		27,222.2
		0358		Mixer 8		27,222.2
		0359		Mixer 9		27,222.2
		0362		Conveyor Green Mix Belt		108,888.89
		0364		Conveyor Green Mix Belt		136,111.11
		2035		Conveyor Green Mix Belt		245,000
		2037		Rejects Chute Flop Gate		6,500
		0425		Tank, Pitch Day, 10000 gallon		39,759.89
		2036		Conveyor Green Mix Belt		245,000
		2006		Hopper Surge (32)		245,000
		0135		Silo Buffer		26,280
		2010		Anode Vibrating Press		245,000

*Note: This column contains operating limitations to ensure compliance with modeling performed for PM & PM₁₀ according to 401 KAR 51:017.

APPLICABLE REGULATIONS:

401 KAR 51:017, *Prevention of significant deterioration of air quality*, applicable with respect to PM and PM₁₀

401 KAR 61:020, *Existing process operations*

40 KAR 63:002, Section 2(4)(bb), 40 C.F.R. 63.840 through 63.855, Tables 1 through 4, and Appendix A (Subpart LL), 40 CFR 63, Subpart LL, National Emission Standards for Hazardous Air Pollutants for Primary Aluminum Reduction Plants

PRECLUDED REGULATIONS:

401 KAR 51:017, *Prevention of significant deterioration of air quality*, Sections 8 to 16, for VOC.

1. Operating Limitations:

- a. At all times, the permittee shall operate and maintain any affected source, including associated air pollution control equipment and monitoring equipment, in a manner consistent with safety and good air pollution control practices for minimizing emissions. Determination of whether such operation and maintenance procedures are being used will be based on information available to the Administrator which may include, but is not limited to, monitoring results, review of operation and maintenance procedures, review of operation and maintenance records and inspection of the source. [40 CFR 63.843(f)]
- b. The permittee shall develop a written startup plan as described in 40 CFR 63.847(m)(1) through (3), to be followed during startup periods for paste production plants. Compliance with the startup plan shall be demonstrated through site inspection(s) and

SECTION B - EMISSION POINTS, EMISSION UNITS, APPLICABLE REGULATIONS, AND OPERATING CONDITIONS (CONTINUED)

review of site records by the Division. The written startup plan shall contain specific procedures to be followed during startup periods of paste production plants, including the following: [40 CFR 63.847(m)]

- i. Records of time, date, duration of paste production plant startup and any nonroutine actions taken during startup of the paste production plant. [40 CFR 63.847(m)(1)]
 - ii. A requirement that the associated emission control system be operating within normal parametric limits prior to startup of the paste production plant. [40 CFR 63.847(m)(2)]
 - iii. A requirement to take immediate actions to stop the startup process as soon as practicable and continue to comply with 40 CFR 63.843(f) if the associated emission control system is off line at any time during startup. The paste production plant restart may resume once the associated emission control system is back on line and operating within normal parametric limits. [40 CFR 63.847(m)(3)]
- c. The permittee shall not exceed the operating limitations listed in the table above, on a rolling 12-month basis. [401 KAR 51:017]

Compliance Demonstration Method:

Refer to **4. Specific Monitoring Requirements**, **5. Specific Recordkeeping Requirements**, and **6. Specific Reporting Requirements**.

2. Emission Limitations:

- a. The permittee shall install, operate and maintain equipment to capture and control POM and PM emissions from the paste production plant. [40 CFR 63.843(b)]
 - i. The emission capture system shall be installed and operated to meet the generally accepted engineering standards for minimum exhaust rates as published by the American Conference of Governmental Industrial Hygienists in Chapters 3 and 5 of "Industrial Ventilation: A Handbook of Recommended Practice" (incorporated by reference; see 40 CFR 63.14); and [40 CFR 63.843(b)(1)]
 - ii. Captured emissions shall be routed through a closed system to a dry coke scrubber; [40 CFR 63.843(b)(2)]
 - iii. **PM limit.** Emissions of PM shall not exceed 0.082 lb/ton (0.041 kg/Mg) of paste. [40 CFR 63.843(b)(4)]

Compliance Demonstration Method:

The permittee shall determine compliance with the applicable PM emission limit using the following equations and procedures: [40 CFR 63.847(e)]

Compute the emission rate (E_{PMpp}) of PM from each paste production plant using the following equation: [40 CFR 63.847(e)(8)]

$$E_{PMpp} = \frac{(C_s \times Q_{sd})}{(P_b \times K)}$$

Where:

E_{PMpp} = emission rate of PM, lb/ton (kg/mg) of green anode material exiting the paste production plant;

C_s = concentration of PM, mg/dscf (mg/dscm);

SECTION B - EMISSION POINTS, EMISSION UNITS, APPLICABLE REGULATIONS, AND OPERATING CONDITIONS (CONTINUED)

Q_{sd} = volumetric flow rate of effluent gas, dscf/hr (dscm/hr);

P_b = quantity of green anode material exiting the paste production plant, ton/hr (mg/hr); and

K = conversion factor, 453,600 mg/lb (106 mg/kg).

- b. The permittee shall not cause, suffer, allow, or permit any continuous emission into the open air from a control device or stack associated with any affected facility which is equal to or greater than forty (40) percent opacity. [401 KAR 61:020, Section 3(1)(a)]

Compliance Demonstration:

Refer to **4. Specific Monitoring Requirements** and **5. Specific Recordkeeping Requirements**.

- c. For emissions from a control device or stack the permittee shall not cause, suffer, allow or permit the emission into the open air of particulate matter from any affected facility which is in excess of the quantity specified in 401 KAR 61:020, Appendix A: [401 KAR 61:020, Section 3(2)(a)]

- | | |
|---|----------------------------------|
| i. For process weight rates ≤ 0.5 tons/hour: | 2.58 lbs/hour |
| ii. For process weight rates ≤ 30 tons/hour: | $E'_{PMj} = 4.10P_j^{0.67}$ |
| iii. For process weight rates > 30 tons/hour: | $E'_{PMj} = 55.0P_j^{0.11} - 40$ |

Where:

j = Emission Unit;

E'_{PMj} = The allowable particulate emission rate for unit j in pounds/hour;

P_j = The process weight rate in tons/hour

Compliance Demonstration Method:

Compliance with the 401 KAR 61:020 mass emission standard is assumed when complying with the 401 KAR 51:017 PM emission limitations.

- d. The permittee shall not allow the combined emissions of PM from EP 28 to exceed 0.002294 lb/hr. [401 KAR 51:017]
- e. The permittee shall not allow the combined emissions of PM₁₀ from EP 28 to exceed 0.0015140 lb/hr. [401 KAR 51:017]
- f. The permittee shall not allow the combined emissions of VOC (POM) from EP 28 to exceed 13.94 lb/hr. [To preclude 401 KAR 51:017, Sections 8 to 16]

Compliance Demonstration Method:

Refer to **3. Testing Requirements**, **4. Specific Monitoring Requirements**, **5. Specific Recordkeeping Requirements**, and **6. Specific Reporting Requirements**.

3. Testing Requirements:

- a. **Test plan.** The permittee shall prepare a site-specific test plan prior to the initial performance test according to the requirements of 40 CFR 63.7(c). The test plan shall

SECTION B - EMISSION POINTS, EMISSION UNITS, APPLICABLE REGULATIONS, AND OPERATING CONDITIONS (CONTINUED)

include procedures for conducting the initial performance test and for subsequent performance tests required in 40 CFR 63.848 for emission monitoring. In addition to the information required by 40 CFR 63.7, the test plan shall include: [40 CFR 63.847(b)]

- i. Procedures to ensure a minimum of three runs are performed annually for the primary control system for each source; [40 CFR 63.847(b)(1)]
- b. Following approval of the site-specific test plan, the permittee shall conduct a performance test to demonstrate initial compliance according to the procedures in 40 CFR 63.847(d). If a performance test has been conducted on the primary control system for the paste production plant within the 12 months prior October 17, 2016, the results of that performance test may be used to demonstrate initial compliance. The permittee shall conduct the performance test: [40 CFR 63.847(c)]
 - i. During the first month following October 17, 2016 for an existing paste production plant. [40 CFR 63.847(c)(1)]
 - ii. For an existing paste production plant that was shut down at the time compliance would have otherwise been required and is subsequently restarted, by the 30th day following startup of a paste production plant. The 30-day period starts when the paste production plant produces green anodes. [40 CFR 63.847(c)(3)(iii)]
- c. **Performance test requirements.** The initial performance test and all subsequent performance tests shall be conducted in accordance with the applicable requirements of the general provisions in 40 CFR 63, Subpart A, the approved test plan and the procedures in 40 CFR 63.847. Performance tests shall be conducted under such conditions as the Administrator specifies to the permittee based on representative performance of the affected source for the period being tested. Upon request, the permittee shall make available to the Administrator such records as may be necessary to determine the conditions of performance tests. [40 CFR 63.847(d)]
- d. Initial compliance with the POM standards for existing paste production plants in 40 CFR 63.843(b) and 63.844(b) will be demonstrated through site inspection(s) and review of site records by the Division. [40 CFR 63.847(f)(1)]
- e. For each paste production plant, the permittee shall measure and record the emission rate of PM exiting the exhaust stacks(s) of the primary emission control system. Using the equation in 40 CFR 63.847(e)(8), the permittee shall compute and record the average of at least three runs each year to determine compliance with the applicable emission limits for PM. Compliance with the PM standards is demonstrated when the PM emission rates are less than or equal to the applicable PM emission limits in 40 CFR 3.843(b)(4). [40 CFR 63.847(f)(2)]
- f. **PM emissions from paste production plants.** Using the procedures in 40 CFR 63.847 and in the approved test plan, the permittee shall monitor PM emissions from each paste production plant on an annual basis. The permittee shall compute and record the annual average of PM emissions from at least three runs to determine compliance with the applicable emission limits. The permittee shall include all valid runs in the annual average. [40 CFR 63.848(n)]

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- g. The permittee shall use the following reference methods to determine compliance with the applicable emission limits for PM and conduct visible emissions observations: [40 CFR 63.849(a)]
 - i. Method 1 in 40 CFR 60, Appendix A for sample and velocity traverses; [40 CFR 63.849(a)(1)]
 - ii. Method 2 in 40 CFR 60, Appendix A for velocity and volumetric flow rate; [40 CFR 63.849(a)(2)]
 - iii. Method 3 in 40 CFR 60, Appendix A for gas analysis; [40 CFR 63.849(a)(3)]
 - iv. Method 5 in 40 CFR 60, Appendix A or an approved alternative method for the concentration of PM where stack or duct emissions are sampled; [40 CFR 63.849(a)(8)]
 - v. Method 22 in 40 CFR 60, Appendix A or an approved alternative method for determination of visual emissions; [40 CFR 63.849(a)(12)]
- h. The following compliance tests shall be performed to determine compliance with all emission limitations listed above and to develop emission factors: [401 KAR 51:017]
 - i. The permittee shall conduct performance testing according to Reference Method 5 and Reference Method 201A for particulate emissions (filterable PM, PM₁₀) once every 12 months, no later than the next annual testing event for 40 CFR 63, Subpart LL. These tests can be performed simultaneously with the testing required by 40 CFR 63, Subpart LL.
 - ii. The permittee shall perform testing according to Method 315 in 40 CFR 63, Appendix A or an approved alternative method for VOC (POM) emissions once every 12 months, no later than the next annual testing event for 40 CFR 63, Subpart LL.
- i. The permittee shall perform testing annually on those pollutants in **2. Emission Limitations (e) and (f)**. If the results of the annual testing are less than or equal to 75% of the permit limit, then no additional testing of those pollutants under **3. Testing Requirements (h)** is required for the duration of the current permit. If the result(s) of testing are greater than 75% of the permit limit, then annual testing will continue until two consecutive annual tests demonstrate that the emissions of VOC (POM), PM and PM₁₀ are less than or equal to 75% of the standards specified herein. No additional testing shall be required for the term of this permit once two consecutive tests have met the criteria.
- j. Pursuant to 401 KAR 61:005, Section 2(2) and 401 KAR 50:045, Section 1, performance testing using the reference methods specified in 401 KAR 50:015 shall be conducted if required by the Cabinet.

4. Specific Monitoring Requirements:

- a. *Selection of monitoring parameters.* The permittee shall determine the operating limits and monitoring frequency for each control device that is to be monitored as required in 40 CFR 63.848(f). [40 CFR 63.847(h)]

SECTION B - EMISSION POINTS, EMISSION UNITS, APPLICABLE REGULATIONS, AND OPERATING CONDITIONS (CONTINUED)

- i. For a paste production plant, the permittee shall specify and provide the basis or rationale for selecting parameters to be monitored and the associated operating limits for the emission control device. [40 CFR 63.847(h)(2)]
- ii. The permittee may redetermine the upper and/or lower operating limits, as appropriate, based on historical data or other information and submit an application to the Division to change the applicable limit(s). The redetermined limits shall become effective upon approval by the Division. [40 CFR 63.847(h)(3)]
- b. The permittee shall perform a qualitative visual observation of the opacity of emissions at the stack twice daily while the affected facility is operating. If visible emissions from the stack are observed (not including condensed water in the plume), the permittee shall determine the opacity using U.S. EPA Reference Method 9. In lieu of determining the opacity using U.S. EPA Reference Method 9, the permittee shall immediately perform a corrective action which results in no visible emissions (not including condensed water in the plume). The Method 22 observations performed for 40 CFR 63, Subpart LL may also be used to meet the qualitative requirement. [401 KAR 52:020, Section 10]
- c. The permittee shall install, operate, calibrate, and maintain a continuous monitoring system for the control equipment according to the approved parametric monitoring plan, which is located in Appendix B to the permit, as provided in 40 CFR 63.848(f). [401 KAR 52:020, Section 10]
- d. Refer to **SECTION F** for general monitoring requirements.

5. Specific Recordkeeping Requirements:

- a. The permittee shall maintain files of all information (including all reports and notifications) required by 40 CFR 63.10(b) and by 40 CFR 63, Subpart LL. [40 CFR 63.850(e)]
- b. The permittee shall retain each record for at least 5 years following the date of each occurrence, measurement, maintenance, corrective action, report, or record. The most recent 2 years of records shall be retained at the facility. The remaining 3 years of records may be retained offsite; [40 CFR 63.850(e)(1)]
- c. The permittee may retain records on microfilm, on a computer, on computer disks, on magnetic tape, or on microfiche; [40 CFR 63.850(e)(2)]
- d. The permittee may report required information on paper or on a labeled computer disc using commonly available and compatible computer software; and [40 CFR 63.850(e)(3)]
- e. In addition to the general records required by 40 CFR 63.10(b), the permittee shall maintain records of the following information: [40 CFR 63.850(e)(4)]
 - i. Records of design information for paste production plant capture systems; [40 CFR 63.850(e)(4)(iv)]
 - ii. Records, such as a checklist or the equivalent, demonstrating that the daily visual inspection of the exhaust stack for each control device has been performed as

SECTION B - EMISSION POINTS, EMISSION UNITS, APPLICABLE REGULATIONS, AND OPERATING CONDITIONS (CONTINUED)

- required in 40 CFR 63.848(g), including the results of each inspection; [40 CFR 63.850(e)(4)(xi)]
- iii. Records documenting the corrective actions taken when the limit(s) for an operating parameter established under 40 CFR 63.847(h) were exceeded or when visible emissions indicating abnormal operation were observed from a control device stack during a daily inspection required under 40 CFR 63.848(g). [40 CFR 63.850(e)(4)(xiii)]
 - iv. Records of the occurrence and duration of each malfunction of operation (i.e. process equipment) or the air pollution control equipment and monitoring equipment; and [40 CFR 63.850(e)(4)(xvi)]
 - v. Records of actions taken during periods of malfunction to minimize emissions in accordance with 40 CFR 63.843(f) and 63.844(f), including corrective actions to restore malfunctioning process and air pollution control and monitoring equipment to its normal or usual manner of operation. [40 CFR 63.850(e)(4)(xvii)]
- f. The permittee shall maintain records of the following: [401 KAR 52:020, Section 10]
- i. Monthly and 12-month rolling process throughputs;
 - ii. Hourly pollutant emission rates, calculated monthly;
 - iii. A log of the qualitative visual observations made as specified in **4. Specific Monitoring Requirements** including the date, time, initials of observer, whether any emissions were observed (yes/no), and any U.S. EPA Reference Method 9 readings taken;
 - iv. Monthly hours of operation;
 - v. Records of calibration for all monitoring devices.
- g. The permittee shall maintain records of the current parametric monitoring plan submitted to the Division in accordance with 40 CFR 63.848(f). [401 KAR 52:020, Section 10]
- h. Refer to **SECTION F** for general recordkeeping requirements.
- 6. Specific Reporting Requirements:**
- a. ***Accuracy and calibration.*** The permittee shall submit recommended accuracy requirements to the Division for review and approval. All monitoring devices required by 40 CFR 63.848 shall be certified by the permittee to meet the accuracy requirements and shall be calibrated in accordance with the manufacturer's instructions. [40 CFR 63.848(k)]
 - b. ***Alternative operating parameters.*** The permittee may monitor alternative control device operating parameters subject to prior written approval by the Division. [40 CFR 63.848(l)]
 - c. The permittee shall submit a one-time notification of startup of an existing paste production plant that was shut down for a long period and subsequently restarted. The permittee shall provide written notice to the Division at least 30 days before the startup. [40 CFR 63.850(a)(9)]

SECTION B - EMISSION POINTS, EMISSION UNITS, APPLICABLE REGULATIONS, AND OPERATING CONDITIONS (CONTINUED)

- d. **Performance test reports.** Within 60 days after the date of completing each performance test (as defined in 40 CFR 63.2) required by 40 CFR 63, Subpart LL, the permittee shall submit the results of the performance tests following the procedure specified in either 40 CFR 63.850(b)(1) or (b)(2). [40 CFR 63.850(b)]
- i. For data collected using test methods supported by the EPA's Electronic Reporting Tool (ERT) as listed on the EPA's ERT Web site (<https://www.epa.gov/ert>) at the time of the test, the permittee must submit the results of the performance test to the EPA via the Compliance and Emissions Data Reporting Interface (CEDRI). CEDRI can be accessed through the EPA's Central Data Exchange (CDX) (https://cdx.epa.gov/epa_home.asp). Performance test data must be submitted in a file format generated through the use of the EPA's ERT. Alternatively, the permittee may submit performance test data in an electronic file format consistent with the extensible markup language (XML) schema listed on the EPA's ERT Web site once the XML schema is available. If the permittee claims that some of the performance test information being submitted is confidential business information (CBI), the permittee must submit a complete file generated through the use of the EPA's ERT or an alternate electronic file consistent with the XML schema listed on the EPA's ERT Web site, including information claimed to be CBI, on a compact disc, flash drive, or other commonly used electronic storage media to the EPA. The electronic media must be clearly marked as CBI and mailed to U.S. EPA/OAQPS/CORE CBI Office, Attention: Group Leader, Measurement Policy Group, MD C404-02, 4930 Old Page Rd., Durham, NC 27703. The same ERT or alternate file with the CBI omitted must be submitted to the EPA via the EPA's CDX as described earlier in this paragraph. [40 CFR 63.850(b)(1)]
 - ii. For data collected using test methods that are not supported by the EPA's ERT as listed on the EPA's ERT Web site at the time of the test, the permittee must submit the results of the performance test to the Administrator at the appropriate address listed in 40 CFR 63.13. [40 CFR 63.850(b)(2)]
 - iii. For data collected which requires summation of results from both ERT and non-ERT supported test methods in order to demonstrate compliance with an emission limit, the permittee must submit the results of the performance test(s) used to demonstrate compliance with that emission limit to the Administrator at the appropriate address listed in 40 CFR 63.13. [40 CFR 63.850(b)(3)]
- e. **Reporting.** In addition to the information required under 40 CFR 63.10 of the General Provisions, the permittee shall provide semiannual reports containing the information specified in 40 CFR 63.850(d)(1) and (2) to the Division. [40 CFR 63.850(d)]
- i. Excess emissions report. As required by 40 CFR 63.10(e)(3), the permittee shall submit a report (or a summary report) if measured emissions are in excess of the applicable standard. The report shall contain the information specified in 40 CFR 63.10(e)(3)(v) and be submitted semiannually unless quarterly reports are required as a result of excess emissions. [40 CFR 63.850(d)(1)]
 - ii. If there was a malfunction during the reporting period, the permittee shall submit a report that includes the number, duration and a brief description for each type of malfunction which occurred during the reporting period and which caused or may have caused any applicable emission limitation to be exceeded. The report shall also

SECTION B - EMISSION POINTS, EMISSION UNITS, APPLICABLE REGULATIONS, AND OPERATING CONDITIONS (CONTINUED)

include a description of actions taken by the permittee during a malfunction of an affected source to minimize emissions in accordance with 40 CFR 63.843(f) and 63.844(f), including actions taken to correct a malfunction. [40 CFR 63.850(d)(2)]

- f. All reports required by 40 CFR 63, Subpart LL not subject to the requirements in 40 CFR 63.850(b) or (c) shall be sent to the Administrator at the appropriate address listed in 40 CFR 63.13. If acceptable to both the Administrator and the permittee, these reports may be submitted on electronic media. The Administrator retains the right to require submittal of reports subject to 40 CFR 63.850(b) in paper format. [40 CFR 63.850(f)]
- g. The Division will notify the permittee in writing of the need for additional time to review the submissions in 40 CFR 63.851(a)(1) through (a)(5) or of approval or intent to deny approval of the submissions in 40 CFR 63.851(a)(1) through (a)(5) within 60 calendar days after receipt of sufficient information to evaluate the submission. The 60-day period begins after the permittee has been notified that the submission is complete. [40 CFR 63.851(a)]
 - i. The test plan in 40 CFR 63.847(b); [40 CFR 63.851(a)(1)]
 - ii. Request to change limits for operating parameters in 40 CFR 63.847(h)(3); [40 CFR 63.851(a)(2)]
- h. The Division will notify the permittee in writing whether the submission is complete within 30 calendar days of receipt of the original submission or within 30 days of receipt of any supplementary information that is submitted. When a submission is incomplete, the Division will specify the information needed to complete the submission and will give the permittee 30 calendar days after receipt of the notification to provide the information. [40 CFR 63.851(b)]
- i. The permittee shall submit any revisions of the parametric monitoring plan to the Division for approval and incorporation into Appendix B of the permit in accordance with 40 CFR 63.848(f). [401 KAR 52:020, Section 10]
- j. Any exceedance over the opacity limits shall be reported in writing to the Division, no later than 30 days after the exceedance. [401 KAR 52:020, Section 10]
 - i. Following initial notification of an exceedance, monthly reports shall be submitted, by the fifteenth of each month to the Division's Owensboro Regional Office.
 - ii. The reports shall contain individual emission units' opacity readings.
 - iii. Monthly reports shall be submitted until there has been 12 consecutive months without any exceedance.
- k. Refer to **SECTION F** for general reporting requirements.

7. Specific Control Equipment Operating Conditions:

- a. ***Monitoring parameters for emission control devices.*** The permittee shall install, operate, calibrate, and maintain a continuous parameter monitoring system for each emission control device. The permittee shall submit for approval by the Division a description of the parameter(s) to be monitored, the operating limits, and the monitoring frequency to

SECTION B - EMISSION POINTS, EMISSION UNITS, APPLICABLE REGULATIONS, AND OPERATING CONDITIONS (CONTINUED)

ensure that the control device is being properly operated and maintained. An explanation of the criteria used for selection of the parameter(s), the operating limits, and the monitoring frequency, including how these relate to emission control also shall be submitted to the Division. Except as provided in 40 CFR 63.848(l), the following monitoring devices shall be installed: [40 CFR 63.848(f)]

- i. For dry coke scrubbers, devices for the measurement of coke flow and air flow; [40 CFR 63.848(f)(2)]
- b. The permittee shall visually inspect the exhaust stack(s) using Method 22 on a twice daily basis (at least 4 hours apart) for evidence of any visible emissions indicating abnormal operations and, shall initiate corrective actions within 1 hour of a visible emissions inspection that indicates abnormal operation. Corrective actions shall include, at a minimum, isolating, shutting down and conducting an internal inspection of the compartment that is the source of the visible emissions that indicate abnormal operations. [40 CFR 63.848(g)(3)]
- c. **Corrective action.** If a monitoring device for a primary control device measures an operating parameter outside the limit(s) established pursuant to 40 CFR 63.847(h) or if visible emissions indicating abnormal operation are observed from the exhaust stack of a control device during a daily inspection, the permittee shall initiate corrective action procedures within 1 hour. Failure to initiate the corrective action procedures within 1 hour or to take the necessary corrective actions to remedy the problem is a violation. [40 CFR 63.848(h)]
- d. **Exceedances.** If the limit for a given operating parameter associated with monitoring a specific control device is exceeded six (6) times in any semiannual reporting period, then any subsequent exceedance in that reporting period is a violation. For the purpose of determining the number of exceedances, no more than one exceedance shall be attributed in any given 24-hour period. [40 CFR 63.848(i)]
- e. Refer to **SECTION E.**

8. Compliance Schedule:

Refer to **SECTION I.**

SECTION B - EMISSION POINTS, EMISSION UNITS, APPLICABLE REGULATIONS, AND OPERATING CONDITIONS (CONTINUED)

Subject Item G - 40 CFR 63, Subpart LL – Pitch Storage Tanks

EP	Group	Equip. Desig.	Cons. Date	Description	Control Equipment
EMISSION GROUP 31					
27	31	0420	1969	Tank #1, Pitch – 100,000 gallons	Carbon Adsorption System
		0440		Tank #2, Pitch – 100,000 gallons	
		2019		Tank #3, Pitch – 100,000 gallons	

APPLICABLE REGULATIONS:

40 KAR 63:002, Section 2(4)(bb), 40 C.F.R. 63.840 through 63.855, Tables 1 through 4, and Appendix A (Subpart LL), 40 CFR 63, Subpart LL, National Emission Standards for Hazardous Air Pollutants for Primary Aluminum Reduction Plants

PRECLUDED REGULATIONS:

401 KAR 51:017, Prevention of significant deterioration of air quality, Sections 8 to 16, for VOC.

1. Operating Limitations:

- a. At all times, the permittee shall operate and maintain any affected source, including associated air pollution control equipment and monitoring equipment, in a manner consistent with safety and good air pollution control practices for minimizing emissions. Determination of whether such operation and maintenance procedures are being used will be based on information available to the Administrator which may include, but is not limited to, monitoring results, review of operation and maintenance procedures, review of operation and maintenance records and inspection of the source. [40 CFR 63.843(f)]
- b. The permittee shall not exceed a combined throughput for EP27 of 124,680 tons of pitch per year. [To preclude 401 KAR 51:017, Sections 8 to 16]

Compliance Demonstration Method:

Refer to **4. Specific Monitoring Requirements**, **5. Specific Recordkeeping Requirements**, and **6. Specific Reporting Requirements**.

2. Emission Limitations:

- a. Each pitch storage tank shall be equipped with an emission control system designed and operated to reduce inlet emissions of POM by 95 percent or greater. [40 CFR 63.843(d)]

Compliance Demonstration Method:

Refer to **2. Testing Requirements**.

- b. Emissions of POM (VOC) shall not exceed a combined rate (EP27) of 0.426987 pounds of POM (VOC) per hour. [To preclude 401 KAR 51:017, Sections 8 to 16]

Compliance Demonstration Method:

Compliance with the emission limitation above is demonstrated by complying with the operating limit in **1. Operating Limitations (b)**.

SECTION B - EMISSION POINTS, EMISSION UNITS, APPLICABLE REGULATIONS, AND OPERATING CONDITIONS (CONTINUED)**3. Testing Requirements:**

- a. **Test plan.** If a performance test is chosen as the method of demonstrating compliance with the emission limits in 40 CFR 63.843(d), the permittee shall prepare a site-specific test plan prior to the initial performance test according to the requirements of 40 CFR 63.7(c). The test plan shall include procedures for conducting the initial performance test and for subsequent performance tests required in 40 CFR 63.848 for emission monitoring. In addition to the information required by 40 CFR 63.7, the test plan shall include: [40 CFR 63.847(b)]
 - i. Procedures to ensure a minimum of three runs are performed annually for the primary control system for each source; [40 CFR 63.847(b)(1)]
- b. Following approval of the site-specific test plan, the permittee shall conduct a performance test (if applicable) to demonstrate initial compliance according to the procedures in 40 CFR 63.847(d). If a performance test has been conducted on the primary control system for the pitch storage tank control device within the 12 months prior to October 16, 2017, the results of that performance test may be used to demonstrate initial compliance. The permittee shall conduct the performance test: [40 CFR 63.847(c)]
 - i. During the first month following October 16, 2017 for an existing pitch storage tank. [40 CFR 63.847(c)(1)]
 - ii. For an existing pitch storage tank that was shut down at the time compliance would have otherwise been required and is subsequently restarted, by the 30th day following startup of a pitch storage tank. The 30-day period starts when the tank is first used to store pitch. [40 CFR 63.847(c)(3)(iv)]
- c. **Performance test requirements.** The initial performance test (if applicable) and all subsequent performance tests shall be conducted in accordance with the applicable requirements of the general provisions in 40 CFR 63, Subpart A, the approved test plan and the procedures in 40 CFR 63.847. Performance tests shall be conducted under such conditions as the Division specifies to the permittee based on representative performance of the affected source for the period being tested. Upon request, the permittee shall make available to the Division such records as may be necessary to determine the conditions of performance tests. [40 CFR 63.847(d)]
- d. The permittee shall demonstrate initial compliance with the standard for pitch storage tanks in 40 CFR 63.843(d) by preparing a design evaluation or by conducting a performance test. The permittee shall submit for approval by the Division the information specified in 40 CFR 63.847(g)(1), along with the information specified in 40 CFR 63.847(g)(2) where a design evaluation is performed or the information specified in 40 CFR 63.847(g)(3) where a performance test is conducted. [40 CFR 63.847(g)]
 - i. A description of the parameters to be monitored to ensure that the control device is being properly operated and maintained, an explanation of the criteria used for selection of that parameter (or parameters), and the frequency with which monitoring will be performed; and [40 CFR 63.847(g)(1)]
 - ii. Where a design evaluation is performed, documentation demonstrating that the control device used achieves the required control efficiency during reasonably expected maximum filling rate. The documentation shall include a description of the

SECTION B - EMISSION POINTS, EMISSION UNITS, APPLICABLE REGULATIONS, AND OPERATING CONDITIONS (CONTINUED)

gas stream that enters the control device, including flow and POM content under varying liquid level conditions, and the information specified in 40 CFR 63.847(g)(2)(i) through (g)(2)(vi), as applicable. [40 CFR 63.847(g)(2)]

- 1) If the control device receives vapors, gases, or liquids, other than fuels, from emission points other than pitch storage tanks, the efficiency demonstration is to include consideration of all vapors, gases, and liquids, other than fuels, received by the control device; [40 CFR 63.847(g)(2)(i)]
 - 2) If an enclosed combustion device with a minimum residence time of 0.5 seconds and a minimum temperature of 760 degrees C (1,400 degrees F) is used to meet the emission reduction requirement specified in 40 CFR 63.843(d), documentation that those conditions exist is sufficient to meet the requirements of 40 CFR 63.843(d); [40 CFR 63.847(g)(2)(ii)]
 - 3) Except as provided in 40 CFR 63.847(g)(2)(ii), for thermal incinerators, the design evaluation shall include the autoignition temperature of the organic HAP, the flow rate of the organic HAP emission stream, the combustion temperature, and the residence time at the combustion temperature; [40 CFR 63.847(g)(2)(iii)]
 - 4) If the pitch storage tank is vented to the emission control system installed for control of emissions from the paste production plant pursuant to 40 CFR 63.843(b) or 40 CFR 63.844(b)(1), documentation of compliance with the requirements of 40 CFR 63.843(b) is sufficient to meet the requirements of 40 CFR 63.843(d) or §63.844(d); [40 CFR 63.847(g)(2)(iv)]
 - 5) For carbon adsorbers, the design evaluation shall include the affinity of the organic vapors for carbon, the amount of carbon in each bed, the number of beds, the humidity of the feed gases, the temperature of the feed gases, the flow rate of the organic HAP emission stream, and if applicable, the desorption schedule, the regeneration stream pressure or temperature, and the flow rate of the regeneration stream. For vacuum desorption, the pressure drop shall be included; and [40 CFR 63.847(g)(2)(v)]
 - 6) For condensers, the design evaluation shall include the final temperature of the organic HAP vapors, the type of condenser, and the design flow rate of the organic HAP emission stream. [40 CFR 63.847(g)(2)(vi)]
- iii. If a performance test is conducted, the permittee shall determine the control efficiency for POM during tank loading using Method 315 in appendix A to 40 CFR 63. The permittee shall include the following information: [40 CFR 63.847(g)(3)]
- 1) Identification of the pitch storage tank and control device for which the performance test will be submitted; and [40 CFR 63.847(g)(3)(i)]
 - 2) Identification of the emission point(s) that share the control device with the pitch storage tank and for which the performance test will be conducted. [40 CFR 63.847(g)(3)(ii)]
- e. The permittee shall use the following reference methods to determine compliance with the applicable emission limits for POM and conduct visible emissions observations: [40 CFR 63.849(a)]
- i. Method 1 in 40 CFR 60, Appendix A for sample and velocity traverses; [40 CFR 63.849(a)(1)]

SECTION B - EMISSION POINTS, EMISSION UNITS, APPLICABLE REGULATIONS, AND OPERATING CONDITIONS (CONTINUED)

- ii. Method 2 in 40 CFR 60, Appendix A for velocity and volumetric flow rate; [40 CFR 63.849(a)(2)]
 - iii. Method 3 in 40 CFR 60, Appendix A for gas analysis; [40 CFR 63.849(a)(3)]
 - iv. Method 315 in appendix A to 40 CFR 63 or an approved alternative method for the concentration of POM where stack or duct emissions are sampled; [40 CFR 63.849(a)(6)]
- f. The permittee may use an alternative test method for POM emissions providing: [40 CFR 63.849(e)]
- i. The permittee has already demonstrated the equivalency of the alternative method for a specific plant and has received previous approval from the U.S. EPA or the Division for POM measurements using the alternative method; or [40 CFR 63.849(e)(1)]
 - ii. The permittee demonstrates to the satisfaction of the Division that the results from the alternative method meet the criteria specified in 40 CFR 63.848(d)(1) and (d)(3) through (d)(6). The results from the alternative method shall be based on simultaneous sampling using the alternative method and the following reference methods: [40 CFR 63.849(e)(2)]
 - 1) For POM, Method 315 in 40 CFR 63, Appendix A and Method 14 in 40 CFR 60, Appendix A. [40 CFR 63.849(e)(2)(ii)]
- g. Pursuant to 401 KAR 50:045, Section 1, performance testing using the reference methods specified in 401 KAR 50:015 shall be conducted if required by the Cabinet.

4. Specific Monitoring Requirements:

- a. *Selection of monitoring parameters.* The permittee shall determine the operating limits and monitoring frequency for each control device that is to be monitored as required in 40 CFR 63.848(f). The permittee may redetermine the upper and/or lower operating limits, as appropriate, based on historical data or other information and submit an application to the Division to change the applicable limit(s). The redetermined limits shall become effective upon approval by the Division. [40 CFR 63.847(h)(3)]
- b. Refer to **SECTION F** for general monitoring requirements.

5. Specific Recordkeeping Requirements:

- a. The permittee shall maintain files of all information (including all reports and notifications) required by 40 CFR 63.10(b) and by 40 CFR 63, Subpart LL. [40 CFR 63.850(e)]
- b. The permittee shall retain each record for at least 5 years following the date of each occurrence, measurement, maintenance, corrective action, report, or record. The most recent 2 years of records shall be retained at the facility. The remaining 3 years of records may be retained offsite; [40 CFR 63.850(e)(1)]
- c. The permittee may retain records on microfilm, on a computer, on computer disks, on magnetic tape, or on microfiche; [40 CFR 63.850(e)(2)]

SECTION B - EMISSION POINTS, EMISSION UNITS, APPLICABLE REGULATIONS, AND OPERATING CONDITIONS (CONTINUED)

- d. The permittee may report required information on paper or on a labeled computer disc using commonly available and compatible computer software; and [40 CFR 63.850(e)(3)]
- e. In addition to the general records required by 40 CFR 63.10(b), the permittee shall maintain records of the following information: [40 CFR 63.850(e)(4)]
 - i. Records documenting the corrective actions taken when the limit(s) for an operating parameter established under 40 CFR 63.847(h) were exceeded. [40 CFR 63.850(e)(4)(xiii)]
 - ii. Records of the occurrence and duration of each malfunction of operation (i.e. process equipment) or the air pollution control equipment and monitoring equipment; and [40 CFR 63.850(e)(4)(xvi)]
 - iii. Records of actions taken during periods of malfunction to minimize emissions in accordance with 40 CFR 63.843(f) and 63.844(f), including corrective actions to restore malfunctioning process and air pollution control and monitoring equipment to its normal or usual manner of operation. [40 CFR 63.850(e)(4)(xvii)]
- f. The permittee shall maintain records of the following: [401 KAR 52:020, Section 10]
 - i. Monthly hours of operation;
 - ii. Monthly and 12-month rolling throughputs;
 - iii. Records of calibration for all monitoring devices.
- g. The permittee shall maintain records of the current parametric monitoring plan submitted to the Division in accordance with 40 CFR 63.848(f). [401 KAR 52:020, Section 10]
- h. Refer to **SECTION F** for general recordkeeping requirements.

6. Specific Reporting Requirements:

- a. ***Accuracy and calibration.*** The permittee shall submit recommended accuracy requirements to the Division for review and approval. All monitoring devices required by 40 CFR 63.848 shall be certified by the permittee to meet the accuracy requirements and shall be calibrated in accordance with the manufacturer's instructions. [40 CFR 63.848(k)]
- b. ***Alternative operating parameters.*** The permittee may monitor alternative control device operating parameters subject to prior written approval by the Division. [40 CFR 63.848(l)]
- c. ***Performance test reports.*** Within 60 days after the date of completing each performance test (as defined in 40 CFR 63.2) required by 40 CFR 63, Subpart LL, the permittee shall submit the results of the performance tests following the procedure specified in either 40 CFR 63.850(b)(1) or (b)(2). [40 CFR 63.850(b)]
 - i. For data collected using test methods supported by the EPA's Electronic Reporting Tool (ERT) as listed on the EPA's ERT Web site (<https://www.epa.gov/ert>) at the time of the test, the permittee must submit the results of the performance test to the EPA via the Compliance and Emissions Data Reporting Interface (CEDRI). CEDRI can be accessed through the EPA's Central Data Exchange (CDX)

SECTION B - EMISSION POINTS, EMISSION UNITS, APPLICABLE REGULATIONS, AND OPERATING CONDITIONS (CONTINUED)

- (https://cdx.epa.gov/epa_home.asp). Performance test data must be submitted in a file format generated through the use of the EPA's ERT. Alternatively, the permittee may submit performance test data in an electronic file format consistent with the extensible markup language (XML) schema listed on the EPA's ERT Web site once the XML schema is available. If the permittee claims that some of the performance test information being submitted is confidential business information (CBI), the permittee must submit a complete file generated through the use of the EPA's ERT or an alternate electronic file consistent with the XML schema listed on the EPA's ERT Web site, including information claimed to be CBI, on a compact disc, flash drive, or other commonly used electronic storage media to the EPA. The electronic media must be clearly marked as CBI and mailed to U.S. EPA/OAQPS/CORE CBI Office, Attention: Group Leader, Measurement Policy Group, MD C404-02, 4930 Old Page Rd., Durham, NC 27703. The same ERT or alternate file with the CBI omitted must be submitted to the EPA via the EPA's CDX as described earlier in this paragraph. [40 CFR 63.850(b)(1)]
- ii. For data collected using test methods that are not supported by the EPA's ERT as listed on the EPA's ERT Web site at the time of the test, the permittee must submit the results of the performance test to the Administrator at the appropriate address listed in 40 CFR 63.13. [40 CFR 63.850(b)(2)]
 - iii. For data collected which requires summation of results from both ERT and non-ERT supported test methods in order to demonstrate compliance with an emission limit, the permittee must submit the results of the performance test(s) used to demonstrate compliance with that emission limit to the Administrator at the appropriate address listed in 40 CFR 63.13. [40 CFR 63.850(b)(3)]
- d. **Reporting.** In addition to the information required under 40 CFR 63.10 of the General Provisions, the permittee shall provide semiannual reports containing the information specified in 40 CFR 63.850(d)(1) and (2) to the Division. [40 CFR 63.850(d)]
- i. Excess emissions report. As required by 40 CFR 63.10(e)(3), the permittee shall submit a report (or a summary report) if measured emissions are in excess of the applicable standard. The report shall contain the information specified in 40 CFR 63.10(e)(3)(v) and be submitted semiannually unless quarterly reports are required as a result of excess emissions. [40 CFR 63.850(d)(1)]
 - ii. If there was a malfunction during the reporting period, the permittee shall submit a report that includes the number, duration and a brief description for each type of malfunction which occurred during the reporting period and which caused or may have caused any applicable emission limitation to be exceeded. The report shall also include a description of actions taken by the permittee during a malfunction of an affected source to minimize emissions in accordance with 40 CFR 63.843(f) and 63.844(f), including actions taken to correct a malfunction. [40 CFR 63.850(d)(2)]
- e. All reports required by 40 CFR 63, Subpart LL not subject to the requirements in 40 CFR 63.850(b) or (c) shall be sent to the Administrator at the appropriate address listed in 40 CFR 63.13. If acceptable to both the Administrator and the permittee, these reports may be submitted on electronic media. The Administrator retains the right to require submittal of reports subject to 40 CFR 63.850(b) in paper format. [40 CFR 63.850(f)]

SECTION B - EMISSION POINTS, EMISSION UNITS, APPLICABLE REGULATIONS, AND OPERATING CONDITIONS (CONTINUED)

- f. The Division will notify the permittee in writing of the need for additional time to review the submissions in 40 CFR 63.851(a)(1) through (a)(5) or of approval or intent to deny approval of the submissions in 40 CFR 63.851(a)(1) through (a)(5) within 60 calendar days after receipt of sufficient information to evaluate the submission. The 60-day period begins after the permittee has been notified that the submission is complete. [40 CFR 63.851(a)]
 - i. The test plan in 40 CFR 63.847(b); [40 CFR 63.851(a)(1)]
 - ii. Request to change limits for operating parameters in 40 CFR 63.847(h)(3); [40 CFR 63.851(a)(2)]
- g. The Division will notify the permittee in writing whether the submission is complete within 30 calendar days of receipt of the original submission or within 30 days of receipt of any supplementary information that is submitted. When a submission is incomplete, the Division will specify the information needed to complete the submission and will give the permittee 30 calendar days after receipt of the notification to provide the information. [40 CFR 63.851(b)]
- h. The permittee shall submit any revisions of the parametric monitoring plan to the Division for approval and incorporation into Appendix B of the permit in accordance with 40 CFR 63.848(f). [401 KAR 52:020, Section 10]
- i. Refer to **SECTION F** for general reporting requirements.

7. Specific Control Equipment Operating Conditions:

- a. ***Monitoring parameters for emission control devices.*** The permittee shall install, operate, calibrate, and maintain a continuous parameter monitoring system for each emission control device. The permittee shall submit for approval by the Division a description of the parameter(s) to be monitored, the operating limits, and the monitoring frequency to ensure that the control device is being properly operated and maintained. An explanation of the criteria used for selection of the parameter(s), the operating limits, and the monitoring frequency, including how these relate to emission control also shall be submitted to the Division. [40 CFR 63.848(f)]
- b. ***Corrective action.*** If a monitoring device for a primary control device measures an operating parameter outside the limit(s) established pursuant to 40 CFR 63.847(h) or if visible emissions indicating abnormal operation are observed from the exhaust stack of a control device during a daily inspection, the permittee shall initiate corrective action procedures within 1 hour. Failure to initiate the corrective action procedures within 1 hour or to take the necessary corrective actions to remedy the problem is a violation. [40 CFR 63.848(h)]
- c. ***Exceedances.*** If the limit for a given operating parameter associated with monitoring a specific control device is exceeded six (6) times in any semiannual reporting period, then any subsequent exceedance in that reporting period is a violation. For the purpose of determining the number of exceedances, no more than one exceedance shall be attributed in any given 24-hour period. [40 CFR 63.848(i)]

SECTION B - EMISSION POINTS, EMISSION UNITS, APPLICABLE REGULATIONS, AND OPERATING CONDITIONS (CONTINUED)

d. Refer to **SECTION E**.

8. Compliance Schedule:
Refer to **SECTION I**.

SECTION B - EMISSION POINTS, EMISSION UNITS, APPLICABLE REGULATIONS, AND OPERATING CONDITIONS (CONTINUED)

Subject Item H - Indirect Heat Exchangers \geq 10 MMBtu/hr

Emission Point 31 (Emission Group 31) – (Century ID #0415)

Eclipse Horizontal Oil Heater

Description:

Model: 1000-B-HC-LT-WP-G-PRO-FM

Installation Date: 1969; Modified 1996

Primary Fuel: Natural Gas

Heat Input Capacity: 18.4 MMBtu/hr

Annual Hours of Operation: 8,760 hr/yr

Control Equipment: None

APPLICABLE REGULATIONS:

401 KAR 59:015, *New indirect heat exchangers*

40 KAR 63:002, Section 2(4)(iii), 40 C.F.R. 63.7480 through 63.7575, Tables 1 through 13 (Subpart DDDDD), *National Emission Standards for Hazardous Air Pollutants for Major Sources: Industrial, Commercial, and Institutional Boilers and Process Heaters*

1. Operating Limitations:

- a. The permittee shall meet the requirements in 40 CFR 63.7500(a)(1) through (3), except as provided in 40 CFR 63.7500(b) through (e). The permittee shall meet these requirements at all times the affected unit is operating, except as provided in 40 CFR 63.7500(f). [40 CFR 63.7500(a)]
 - i. The permittee shall meet each work practice standard in Table 3 to 40 CFR 63, Subpart DDDDD that applies to the boiler or process heater, for each boiler or process heater. [40 CFR 63.7500(a)(1)]
 - ii. At all times, the permittee shall operate and maintain any affected source (as defined in 40 CFR 63.7490), including associated air pollution control equipment and monitoring equipment, in a manner consistent with safety and good air pollution control practices for minimizing emissions. Determination of whether such operation and maintenance procedures are being used will be based on information available to the Administrator that may include, but is not limited to, monitoring results, review of operation and maintenance procedures, review of operation and maintenance records, and inspection of the source. [40 CFR 63.7500(a)(3)]
- b. The permittee shall be in compliance with the work practice standards in 40 CFR 63, Subpart DDDDD. [40 CFR 63.7505(a)]
- c. The permittee must conduct an annual performance tune-up according to 40 CFR 63.7540(a)(10). Each annual tune-up specified in 40 CFR 63.7540(a)(10) must be no more than 13 months after the previous tune-up. [40 CFR 63.7515(d), Table 3(3)]
- d. The permittee must complete a subsequent tune-up by following the procedures described in 40 CFR 63.7540(a)(10)(i) through (vi) and the schedule described in 40 CFR 63.7540(a)(13) for units that are not operating at the time of their scheduled tune-up. [40 CFR 63.7515(g)]

SECTION B - EMISSION POINTS, EMISSION UNITS, APPLICABLE REGULATIONS, AND OPERATING CONDITIONS (CONTINUED)**Compliance Demonstration Method:**

- A. The permittee shall demonstrate continuous compliance with the work practice standards in Table 3 to 40 CFR 63, Subpart DDDDD that apply according to the methods specified in Table 8 to 40 CFR 63, Subpart DDDDD and 40 CFR 63.7540(a)(1) through (19). [40 CFR 63.7540(a)]
- B. The permittee shall conduct an annual tune-up of the process heater to demonstrate continuous compliance as specified in 40 CFR 63.7540(a)(10)(i) through (vi). The permittee shall conduct the tune-up while burning the type of fuel that provided the majority of the heat input to the process heater over the 12 months prior to the tune-up. [40 CFR 63.7540(a)(10)]
 - I. As applicable, inspect the burner, and clean or replace any components of the burner as necessary (the permittee may perform the burner inspection any time prior to the tune-up or delay the burner inspection until the next scheduled unit 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; [40 CFR 63.7540(a)(10)(i)]
 - II. 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; [40 CFR 63.7540(a)(10)(ii)]
 - III. Inspect the system controlling the air-to-fuel ratio, as applicable, and ensure that it is correctly calibrated and functioning properly (the permittee may delay the inspection until the next scheduled unit shutdown). [40 CFR 63.7540(a)(10)(iii)]
 - IV. Optimize total emissions of CO. This optimization should be consistent with the manufacturer's specifications, if available, and with any NOX requirement to which the unit is subject; [40 CFR 63.7540(a)(10)(iv)]
 - V. Measure the concentrations in the effluent stream of CO 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 CO analyzer; and [40 CFR 63.7540(a)(10)(v)]
 - VI. Maintain on-site and submit, if requested by the Administrator, a report containing the information in 40 CFR 63.7540(a)(10)(vi)(A) through (C), [40 CFR 63.7540(a)(10)(vi)]
 - 1) The concentrations of CO 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; [40 CFR 63.7540(a)(10)(vi)(A)]
 - 2) A description of any corrective actions taken as a part of the tune-up; and [40 CFR 63.7540(a)(10)(vi)(B)]
 - 3) The type and amount of fuel used over the 12 months prior to the tune-up, but only if the unit was physically and legally capable of using more than one type of fuel during that period. Units sharing a fuel meter may estimate the fuel used by each unit. [40 CFR 63.7540(a)(10)(vi)(C)]
- C. If the unit is not operating on the required date for a tune-up, the tune-up must be conducted within 30 calendar days of startup. [40 CFR 63.7540(a)(13)]

SECTION B - EMISSION POINTS, EMISSION UNITS, APPLICABLE REGULATIONS, AND OPERATING CONDITIONS (CONTINUED)**2. Emission Limitations:**

- a. The permittee shall not cause emissions of particulate matter in excess of 0.48 lb/MMBtu actual heat input. [401 KAR 59:015, Section 4(1)(c)]
- b. The permittee shall not cause emissions of particulate matter in excess of twenty (20) percent opacity except: [401 KAR 59:015, Section 4(2)]
 - i. a maximum of forty (40) percent opacity shall be allowed for a maximum of six (6) consecutive minutes in any sixty (60) consecutive minutes during fire box cleaning or soot blowing; and [401 KAR 59:015, Section 4(2)(b)]
 - ii. For emissions from an affected facility caused by building a new fire, emissions during the period required to bring the boiler up to operating conditions shall be allowed, if the method used is recommended by the manufacturer and the time does not exceed the manufacturer's recommendations. [401 KAR 59:015, Section 4(2)(c)]
- c. The permittee shall not cause emissions of gases that contain sulfur dioxide in excess of 2.3 lb/MMBtu actual heat input. [401 KAR 59:015, Section 5(1)(c)(2.)]

Compliance Demonstration Method:

Compliance with the 401 KAR 59:015 emission standards is assumed. [401 KAR 50:045, Section 4(3)(c)1.]

3. Testing Requirements:

Pursuant to 401 KAR 59:005, Section 2(2) and 401 KAR 50:045, Section 1, performance testing using the reference methods specified in 401 KAR 50:015 shall be conducted if required by the Cabinet.

4. Specific Monitoring Requirements:

- a. The permittee shall monitor the amount of natural gas combusted, in MMscf, on a monthly basis. [401 KAR 52:020, Section 10]
- b. Refer to **SECTION F** for general monitoring requirements.

5. Specific Recordkeeping Requirements:

- a. The permittee must keep records according to 40 CFR 63.7555(a)(1) and (2). [40 CFR 63.7555(a)]
 - i. A copy of each notification and report that the permittee submitted to comply with 40 CFR 63, Subpart DDDDD, including all documentation supporting any Initial Notification or Notification of Compliance Status or semiannual compliance report that was submitted, according to the requirements in 40 CFR 63.10(b)(2)(xiv). [40 CFR 63.7555(a)(1)]
 - ii. Records of performance tests, fuel analyses, or other compliance demonstrations and performance evaluations as required in 40 CFR 63.10(b)(2)(viii). [40 CFR 63.7555(a)(2)]
- b. The records must be in a form suitable and readily available for expeditious review, according to 40 CFR 63.10(b)(1). [40 CFR 63.7560(a)]

SECTION B - EMISSION POINTS, EMISSION UNITS, APPLICABLE REGULATIONS, AND OPERATING CONDITIONS (CONTINUED)

- c. As specified in 40 CFR 63.10(b)(1), the permittee must keep each record for 5 years following the date of each occurrence, measurement, maintenance, corrective action, report, or record. [40 CFR 63.7560(b)]
- d. The permittee must keep each record on site, or they must be accessible from on site (for example, through a computer network), for at least 2 years after the date of each occurrence, measurement, maintenance, corrective action, report, or record, according to 40 CFR 63.10(b)(1). The permittee may keep the records off site for the remaining 3 years. [40 CFR 63.7560(c)]
- e. The permittee shall maintain records of the amount of natural gas combusted, in MMscf, on a monthly basis. [401 KAR 52:020, Section 10]
- f. Refer to **SECTION F** for general recordkeeping requirements.

6. Specific Reporting Requirements:

- a. The permittee must report each instance in which the permittee did not meet each emission limit and operating limit in Tables 1 through 4 or 11 through 15 to 40 CFR 63, Subpart DDDDD that apply. These instances are deviations from the emission limits or operating limits, respectively, in 40 CFR 63, Subpart DDDDD. These deviations must be reported according to the requirements in 40 CFR 63.7550. [40 CFR 63.7540(b)]
- b. The permittee shall submit to the Division all of the notifications in 40 CFR 63.7(b) and (c), 63.8(e), (f)(4) and (6), and 63.9(b) through (h) that apply by the dates specified. [40 CFR 63.7545(a)]
- c. The permittee shall submit each report in Table 9 to 40 CFR 63, Subpart DDDDD that applies. [40 CFR 63.7550(a)]
- d. Unless the EPA Administrator has approved a different schedule for submission of reports under 40 CFR 63.10(a), the permittee must submit each report, according to 40 CFR 63.7550(h), by the date in Table 9 to 40 CFR 63, Subpart DDDDD and according to the requirements in 40 CFR 63.7550(b)(1) through (4). For units that are subject only to a requirement to conduct subsequent annual tune-ups according to 40 CFR 63.7540(a)(10), and not subject to emission limits or Table 4 operating limits, the permittee may submit only an annual compliance report, as specified in 40 CFR 63.7550(b)(1) through (4), instead of a semi-annual compliance report. [40 CFR 63.7550(b)]
 - i. Each semi-annual compliance report shall cover the semiannual reporting period from January 1 through June 30 or the semiannual reporting period from July 1 through December 31. Annual compliance reports must cover the 1-year period from January 1 to December 31. [40 CFR 63.7550(b)(3)]
 - ii. Each semi-annual compliance report shall be postmarked or submitted no later than July 31 or January 31, whichever date is the first date following the end of the semiannual reporting period. Annual compliance reports must be postmarked or submitted no later than January 31. [40 CFR 63.7550(b)(4)]

SECTION B - EMISSION POINTS, EMISSION UNITS, APPLICABLE REGULATIONS, AND OPERATING CONDITIONS (CONTINUED)

- iii. The permittee may submit the first and subsequent compliance reports according to the dates the Division has established in **SECTION F** of this permit instead of according to the dates in 40 CFR 63.7550(b)(1) through (4). [40 CFR 63.7550(b)(5)]
- e. A compliance report must contain the following information depending on how the facility chooses to comply with the limits set in 40 CFR 63, Subpart DDDDD: [40 CFR 63.7550(c)]
 - i. The permittee shall submit a compliance report with the information in 40 CFR 63.7550(c)(5)(i) through (iii), (xiv) and (xvii). [40 CFR 63.7550(c)(1)]
 - ii. Company and Facility name and address. [40 CFR 63.7550(c)(5)(i)]
 - iii. Process unit information, emissions limitations, and operating parameter limitations. [40 CFR 63.7550(c)(5)(ii)]
 - iv. Date of report and beginning and ending dates of the reporting period. [40 CFR 63.7550(c)(5)(iii)]
 - v. Include the date of the most recent tune-up for each unit subject to only the requirement to conduct an annual tune-up according to 40 CFR 63.7540(a)(10). Include the date of the most recent burner inspection if it was not done annually and was delayed until the next scheduled or unscheduled unit shutdown. [40 CFR 63.7550(c)(5)(xiv)]
 - vi. Statement by a responsible official with that official's name, title, and signature, certifying the truth, accuracy, and completeness of the content of the report. [40 CFR 63.7550(c)(5)(xvii)]
- f. For each deviation from an emission limit or operating limit in 40 CFR 63, Subpart DDDDD that occurs at an individual boiler or process heater where the permittee is not using a CMS to comply with that emission limit or operating limit, or from the work practice standards for periods of startup and shutdown, the compliance report must additionally contain the information required in 40 CFR 63.7550(d)(1) through (3). [40 CFR 63.7550(d)]
 - i. A description of the deviation and which emission limit, operating limit, or work practice standard from which the permittee deviated. [40 CFR 63.7550(d)(1)]
 - ii. Information on the number, duration, and cause of deviations (including unknown cause), as applicable, and the corrective action taken. [40 CFR 63.7550(d)(2)]
- g. The permittee shall submit the reports according to the procedures specified in 40 CFR 63.7550(h)(1) through (3). [40 CFR 63.7550(h)]
 - i. The permittee must submit all reports required by Table 9 of 40 CFR 63, Subpart DDDDD electronically to the EPA via the CEDRI. (CEDRI can be accessed through the EPA's CDX.) The permittee must use the appropriate electronic report in CEDRI for 40 CFR 63, Subpart DDDDD. Instead of using the electronic report in CEDRI for 40 CFR 63, Subpart DDDDD, the permittee may submit an alternate electronic file consistent with the XML schema listed on the CEDRI Web site (<http://www.epa.gov/ttn/chief/cedri/index.html>), once the XML schema is available. If the reporting form specific to 40 CFR 63, Subpart DDDDD is not available in CEDRI at the time that the report is due, the permittee must submit the report to the Administrator at the appropriate address listed in 40 CFR 63.13. The permittee must

SECTION B - EMISSION POINTS, EMISSION UNITS, APPLICABLE REGULATIONS, AND OPERATING CONDITIONS (CONTINUED)

begin submitting reports via CEDRI no later than 90 days after the form becomes available in CEDRI. [40 CFR 63.7550(h)(3)]

h. Refer to **SECTION F** for general reporting requirements.

7. Compliance Schedule:

Refer to **SECTION I**.

SECTION B - EMISSION POINTS, EMISSION UNITS, APPLICABLE REGULATIONS, AND OPERATING CONDITIONS (CONTINUED)

Subject Item I - Indirect Heat Exchangers < 10 MMBtu/hr

Emission Point 165 (Emission Group 50)

Change House Hot Water Heater

Description:

Model: 1000-B-HC-LT-WP-G-PRO-FM

Installation Date: 1969

Primary Fuel: Natural Gas

Heat Input Capacity: 1.4 MMBtu/hr

Control Equipment: None

APPLICABLE REGULATIONS:

401 KAR 59:015, *New indirect heat exchangers*

STATE-ORIGIN REQUIREMENTS:

401 KAR 63:020, *Potentially hazardous matter or toxic substances*, applies to each affected facility which emits or may emit potentially hazardous matter or toxic substances.

1. Operating Limitations:

During a startup period or shutdown period, the permittee shall comply with the work practice standards established in 401 KAR 59:015, Section 7. [401 KAR 59:015, Section 7]

- a. The permittee shall comply with 401 KAR 50:055, Section 2(5); [401 KAR 59:015, Section 7(1)(a)]
- b. The frequency and duration of startup periods or shutdown periods shall be minimized by the affected facility; [401 KAR 59:015, Section 7(1)(b)]
- c. All reasonable steps shall be taken by the permittee to minimize the impact of emissions on ambient air quality from the affected facility during startup periods and shutdown periods; [401 KAR 59:015, Section 7(1)(c)]
- d. The actions, including duration of the startup period, of the permittee during startup and shutdown periods, shall be documented in signed, contemporaneous logs or other relevant evidence; [401 KAR 59:015, Section 7(1)(d)]
- e. Startups and shutdowns shall be conducted according to either: [401 KAR 59:015, Section 7(1)(e)]
 - i. The manufacturer's recommended procedures; or [401 KAR 59:015, Section 7(1)(e)1.]
 - ii. Recommended procedures for a unit of similar design, for which manufacturer's recommended procedures are available, as approved by the cabinet based on documentation provided by the permittee. [401 KAR 59:015, Section 7(1)(e)2.]

Compliance Demonstration Method:

Compliance shall be demonstrated according to **5. Specific Recordkeeping Requirements**

b.

SECTION B - EMISSION POINTS, EMISSION UNITS, APPLICABLE REGULATIONS, AND OPERATING CONDITIONS (CONTINUED)

2. Emission Limitations:

- a. The permittee shall not cause emissions of particulate matter in excess of 0.48 lb/MMBtu actual heat input. [401 KAR 59:015, Section 4(1)(c)]
- b. The permittee shall not cause emissions of particulate matter in excess of twenty (20) percent opacity except: [401 KAR 59:015, Section 4(2)]
 - i. a maximum of forty (40) percent opacity shall be allowed for a maximum of six (6) consecutive minutes in any sixty (60) consecutive minutes during fire box cleaning or soot blowing; and [401 KAR 59:015, Section 4(2)(b)]
 - ii. For emissions from an affected facility caused by building a new fire, emissions during the period required to bring the boiler up to operating conditions shall be allowed, if the method used is recommended by the manufacturer and the time does not exceed the manufacturer's recommendations. [401 KAR 59:015, Section 4(2)(c)]
- c. The permittee shall not cause emissions of gases that contain sulfur dioxide in excess of 2.3 lb/MMBtu actual heat input. [401 KAR 59:015, Section 5(1)(c)(2.)]

Compliance Demonstration Method:

Compliance with the 401 KAR 59:015 emission standards is assumed. [401 KAR 50:045, Section 4(3)(c)1.]

- d. The permittee shall not allow any affected facility to emit potentially hazardous matter or toxic substances in such quantities or duration as to be harmful to the health and welfare of humans, animals, and plants. [401 KAR 63:020]

Compliance Demonstration Method:

The Cabinet determines the affected facility to be in compliance with 401 KAR 63:020 when burning natural gas.

3. Testing Requirements:

Pursuant to 401 KAR 59:005, Section 2(2) and 401 KAR 50:045, Section 1, performance testing using the reference methods specified in 401 KAR 50:015 shall be conducted if required by the Cabinet.

4. Specific Monitoring Requirements:

- a. The permittee shall monitor the amount of natural gas combusted, in MMscf, on a monthly basis. [401 KAR 52:020, Section 10]
- b. Refer to **SECTION F** for general monitoring requirements.

5. Specific Recordkeeping Requirements:

- a. The permittee shall maintain records of the amount of natural gas combusted, in MMscf, on a monthly basis. [401 KAR 52:020, Section 10]

SECTION B - EMISSION POINTS, EMISSION UNITS, APPLICABLE REGULATIONS, AND OPERATING CONDITIONS (CONTINUED)

- b. The permittee shall keep records of the manufacturer's recommended procedures for startup and shutdown, any instance in which the recommended procedures were not followed, and any corrective action taken. [401 KAR 52:020, Section 10]
- c. Refer to **SECTION F** for general recordkeeping requirements.

6. Specific Reporting Requirements:

Refer to **SECTION F** for general reporting requirements.

SECTION B - EMISSION POINTS, EMISSION UNITS, APPLICABLE REGULATIONS, AND OPERATING CONDITIONS (CONTINUED)

Subject Item J - Existing Stationary Rice < 500 HP

EP	Group	Equip. Desig.	Cons. Date	Description	Model	Fuel	Rated Capacity	Control Equipment
EMISSION GROUP 50								
137	50	0111	1969	Fire Pump Engine	Detroit Diesel 4-71, Model 4061AZ	Diesel	115 HP	None
138	50	3728	2002	Admin Emergency Generator Engine	Olympian Generator with Perkins Engine, Model D50P3	Diesel	91 HP	None
139	50	3721	1970	HR Emergency Generator Engine	Onan Generator with CCK Engine, Model #5.0CCK-3CR/1J	Natural Gas	67 HP	None

APPLICABLE REGULATIONS:

40 CFR 63, Subpart ZZZZ, *National Emissions Standards for Hazardous Air Pollutants for Stationary Reciprocating Internal Combustion Engines*

1. Operating Limitations:

- a. The permittee must comply with the emission limitations and other requirements in Table 2c to 40 CFR 63, Subpart ZZZZ which apply. [40 CFR 63.6602]
- b. The permittee must be in compliance with the emission limitations, operating limitations, and other requirements in 40 CFR 63, Subpart ZZZZ that apply to the permittee at all times. [40 CFR 63.6605(a)]
- c. At all times the permittee must operate and maintain any affected source, including associated air pollution control equipment and monitoring equipment, in a manner consistent with safety and good air pollution control practices for minimizing emissions. Determination of whether such operation and maintenance procedures are being used will be based on information available to the Administrator which may include, but is not limited to, monitoring results, review of operation and maintenance procedures, review of operation and maintenance records, and inspection of the source. [40 CFR 63.6605(b)]
- d. The permittee must operate and maintain the stationary RICE according to the manufacturer's emission-related written instructions or develop a maintenance plan which shall provide to the extent practicable for the maintenance and operation of the engine in a manner consistent with good air pollution control practice for minimizing emissions. [40 CFR 62.6625(e)]
- e. The permittee must install a non-resettable hour meter if one is not already installed. [40 CFR 63.6625(f)]
- f. The permittee must minimize the engine's time spent at idle during startup and minimize the engine's startup time to a period needed for appropriate and safe loading of the engine, not to exceed 30 minutes, after which time the emission standards applicable to

SECTION B - EMISSION POINTS, EMISSION UNITS, APPLICABLE REGULATIONS, AND OPERATING CONDITIONS (CONTINUED)

all times other than startup in Tables 1a, 2a, 2c, and 2d to 40 CFR 63, Subpart ZZZZ apply. [40 CFR 63.6625(h), and 40 CFR 63, Subpart ZZZZ, Table 2c]

- g. For EP 137 & EP138, the permittee has the option of utilizing an oil analysis program in order to extend the specified oil change requirement in Table 2c to 40 CFR 63, Subpart ZZZZ. The oil analysis shall be performed at the same frequency specified for changing the oil in Table 2c to 40 CFR 63, Subpart ZZZZ. The analysis program must at a minimum analyze the following three parameters: Total Base Number, viscosity, and percent water content. The condemning limits for these parameters are as follows: Total Base Number is less than 30 percent of the Total Base Number of the oil when new; viscosity of the oil has changed by more than 20 percent from the viscosity of the oil when new; or percent water content (by volume) is greater than 0.5. If all of these condemning limits are not exceeded, the permittee is not required to change the oil. If any of the limits are exceeded, the permittee must change the oil within 2 business days of receiving the results of the analysis; if the engine is not in operation when the results of the analysis are received, the permittee must change the oil within 2 business days or before commencing operation, whichever is later. The permittee must keep records of the parameters that are analyzed as part of the program, the results of the analysis, and the oil changes for the engine. The analysis program must be part of the maintenance plan for the engine. [40 CFR 63.6625(i)]
- h. For EP 139, the permittee has the option of utilizing an oil analysis program in order to extend the specified oil change requirement in Table 2c to 40 CFR 63, Subpart ZZZZ. The oil analysis must be performed at the same frequency specified for changing the oil in Table 2c to 40 CFR 63, Subpart ZZZZ. The analysis program must at a minimum analyze the following three parameters: Total Acid Number, viscosity, and percent water content. The condemning limits for these parameters are as follows: Total Acid Number increases by more than 3.0 milligrams of potassium hydroxide (KOH) per gram from Total Acid Number of the oil when new; viscosity of the oil has changed by more than 20 percent from the viscosity of the oil when new; or percent water content (by volume) is greater than 0.5. If all of these condemning limits are not exceeded, the permittee is not required to change the oil. If any of the limits are exceeded, the permittee must change the oil within 2 business days of receiving the results of the analysis; if the engine is not in operation when the results of the analysis are received, the permittee must change the oil within 2 business days or before commencing operation, whichever is later. The permittee must keep records of the parameters that are analyzed as part of the program, the results of the analysis, and the oil changes for the engine. The analysis program must be part of the maintenance plan for the engine. [40 CFR 63.6625(j)]
- i. The permittee shall operate the emergency stationary RICE according to the requirements in 40 CFR 63.6640(f)(1) through (4). In order for the engine to be considered an emergency stationary RICE under 40 CFR 63, Subpart ZZZZ, any operation other than emergency operation, maintenance and testing, and operation in non-emergency situations for 50 hours per year, as described in 40 CFR 63.6640(f)(1) through (4), is prohibited. If the permittee does not operate the engine according to the requirements in 40 CFR 63.6640(f)(1) through (4), the engine will not be considered an emergency

SECTION B - EMISSION POINTS, EMISSION UNITS, APPLICABLE REGULATIONS, AND OPERATING CONDITIONS (CONTINUED)

engine under 40 CFR 63, Subpart ZZZZ and shall meet all requirements for non-emergency engines. [40 CFR 63.6640(f)]

- i. There is no time limit on the use of emergency stationary RICE in emergency situations. [40 CFR 63.6640(f)(1)]
 - ii. The permittee may operate the emergency stationary RICE for the purpose specified in 40 CFR 63.6640(f)(2)(i) for a maximum of 100 hours per calendar year. Any operation for non-emergency situations as allowed by 40 CFR 63.6640(f)(3) counts as part of the 100 hours per calendar year allowed by 40 CFR 63.6640(f)(2). [40 CFR 63.6640(f)(2)]
 - 1) Emergency stationary RICE may be operated for maintenance checks and readiness testing, provided that the tests are recommended by federal, state or local government, the manufacturer, the vendor, the regional transmission organization or equivalent balancing authority and transmission operator, or the insurance company associated with the engine. The permittee may petition the Administrator for approval of additional hours to be used for maintenance checks and readiness testing, but a petition is not required if the permittee maintains records indicating that federal, state, or local standards require maintenance and testing of emergency RICE beyond 100 hours per calendar year. [40 CFR 63.6640(f)(2)(i)]
 - iii. Emergency stationary RICE located at major sources of HAP may be operated for up to 50 hours per calendar year in non-emergency situations. The 50 hours of operation in non-emergency situations are counted as part of the 100 hours per calendar year for maintenance and testing provided in 40 CFR 63.6640(f)(2). The 50 hours per year for non-emergency situations cannot be used for peak shaving or non-emergency demand response, or to generate income for a facility to supply power to an electric grid or otherwise supply power as part of a financial arrangement with another entity. [40 CFR 63.6640(f)(3)]
- j. For EP 137 & EP138, the permittee shall meet the following requirements, except during periods of startup: [40 CFR 63, Subpart ZZZZ, Table 2c]
- i. Change oil and filter every 500 hours of operation or annually, whichever comes first. [40 CFR 63, Subpart ZZZZ, Table 2c(1)(a)]
 - ii. Inspect air cleaner every 1,000 hours of operation or annually, whichever comes first, and replace as necessary; [40 CFR 63, Subpart ZZZZ, Table 2c(1)(b)]
 - iii. Inspect all hoses and belts every 500 hours of operation or annually, whichever comes first, and replace as necessary. [40 CFR 63, Subpart ZZZZ, Table 2c(1)(c)]
- k. For EP139, the permittee shall meet the following requirements, except during periods of startup: [40 CFR 63, Subpart ZZZZ, Table 2c]
- i. Change oil and filter every 500 hours of operation or annually, whichever comes first; [40 CFR 63, Subpart ZZZZ, Table 2c(6)(a)]
 - ii. Inspect spark plugs every 1,000 hours of operation or annually, whichever comes first, and replace as necessary; [40 CFR 63, Subpart ZZZZ, Table 2c(6)(b)]
 - iii. Inspect all hoses and belts every 500 hours of operation or annually, whichever comes first, and replace as necessary. [40 CFR 63, Subpart ZZZZ, Table 2c(6)(c)]

SECTION B - EMISSION POINTS, EMISSION UNITS, APPLICABLE REGULATIONS, AND OPERATING CONDITIONS (CONTINUED)

1. If an emergency engine is operating during an emergency and it is not possible to shut down the engine in order to perform the work practice requirements on the schedule required in Table 2c of 40 CFR 63, Subpart ZZZZ, or if performing the work practice on the required schedule would otherwise pose an unacceptable risk under federal, state, or local law, the work practice can be delayed until the emergency is over or the unacceptable risk under federal, state, or local law has abated. The work practice should be performed as soon as practicable after the emergency has ended or the unacceptable risk under federal, state, or local law has abated. Sources shall report any failure to perform the work practice on the schedule required and the federal, state or local law under which the risk was deemed unacceptable. [40 CFR 63, Subpart ZZZZ, Table 2c, Footnote 1]

Compliance Demonstration Method:

The permittee must demonstrate continuous compliance with each emission limitation, operating limitation, and other requirements in Tables 1a and 1b, Tables 2a and 2b, Table 2c, and Table 2d to this subpart that apply according to methods specified in Table 6 to 40 CFR 63, Subpart ZZZZ. [40 CFR 63.6640(a)]

- A. The permittee must demonstrate continuous compliance with the work or management practices by: [40 CFR 63, Subpart ZZZZ, Table 6(9)(a)]
 - I. Operating and maintaining the stationary RICE according to the manufacturer's emission-related operation and maintenance instructions; or [40 CFR 63, Subpart ZZZZ, Table 6(9)(a)(i)]
 - II. Developing and following a maintenance plan which must provide to the extent practicable for the maintenance and operation of the engine in a manner consistent with good air pollution control practice for minimizing emissions. [40 CFR 63, Subpart ZZZZ, Table 6(9)(a)(ii)]

2. Emission Limitations:

None

3. Testing Requirements:

Pursuant to 401 KAR 50:045, Section 1, performance testing using the reference methods specified in 401 KAR 50:015 shall be conducted if required by the Cabinet.

4. Specific Monitoring Requirements:

- a. Except for monitor malfunctions, associated repairs, required performance evaluations, and required quality assurance or control activities, the permittee shall monitor continuously at all times that the stationary RICE is operating. A monitoring malfunction is any sudden, infrequent, not reasonably preventable failure of the monitoring to provide valid data. Monitoring failures that are caused in part by poor maintenance or careless operation are not malfunctions. [40 CFR 63.6635(b)]
- b. Refer to **SECTION F** for general monitoring requirements.

5. Specific Recordkeeping Requirements:

- a. The permittee shall keep the records described below: [40 CFR 63.6655(a)]

SECTION B - EMISSION POINTS, EMISSION UNITS, APPLICABLE REGULATIONS, AND OPERATING CONDITIONS (CONTINUED)

- i. A copy of each notification and report that the permittee submitted to comply with 40 CFR 63, Subpart ZZZZ, including all documentation supporting any Initial Notification or Notification of Compliance Status that the permittee submitted, according to the requirement in 40 CFR 63.10(b)(2)(xiv). [40 CFR 63.6655(a)(1)]
 - ii. Records of the occurrence and duration of each malfunction of operation (i.e., process equipment) or the air pollution control and monitoring equipment. [40 CFR 63.6655(a)(2)]
 - iii. Records of performance tests and performance evaluations as required in 40 CFR 63.10(b)(2)(viii). [40 CFR 63.6655(a)(3)]
 - iv. Records of actions taken during periods of malfunction to minimize emissions in accordance with 40 CFR 63.6605(b), including corrective actions to restore malfunctioning process and air pollution control and monitoring equipment to its normal or usual manner of operation. [40 CFR 63.6655(a)(5)]
- b. The permittee shall keep the records required in Table 6 of 40 CFR 63, Subpart ZZZZ to show continuous compliance with each emission or operating limitation that applies to the engines. [40 CFR 63.6655(d)]
- c. The permittee shall keep records of the maintenance conducted on the stationary RICE in order to demonstrate that the permittee operated and maintained the stationary RICE and after-treatment control device (if any) according to the maintenance plan. [40 CFR 63.6655(e)]
- d. The permittee shall keep records of the hours of operation of the engine that is recorded through the non-resettable hour meter. The permittee shall document how many hours are spent for emergency operation, including what classified the operation as emergency and how many hours are spent for non-emergency operation. [40 CFR 63.6655(f)]
- e. The records must be in a form suitable and readily available for expeditious review according to 40 CFR 63.10(b)(1). [40 CFR 63.6660(a)]
- f. As specified in 40 CFR 63.10(b)(1), the permittee must keep each record for 5 years following the date of each occurrence, measurement, maintenance, corrective action, report, or record. [40 CFR 63.6660(b)]
- g. The permittee must keep each record readily accessible in hard copy or electronic form for at least 5 years after the date of each occurrence, measurement, maintenance, corrective action, report, or record, according to 40 CFR 63.10(b)(1). [40 CFR 63.6660(c)]
- h. Refer to **SECTION F** for general recordkeeping requirements.

6. Specific Reporting Requirements:

- a. The permittee shall report each instance in which each operating limitation in Table 2c to 40 CFR 63, Subpart ZZZZ that applies was not met. These instances are deviations from

SECTION B - EMISSION POINTS, EMISSION UNITS, APPLICABLE REGULATIONS, AND OPERATING CONDITIONS (CONTINUED)

the operating limitations in 40 CFR 63, Subpart ZZZZ. These deviations shall be reported according to the requirements in 40 CFR 63.6650. [40 CFR 63.6640(b)]

- b. Refer to **SECTION F** for general reporting requirements.

7. Compliance Schedule:

Refer to **SECTION I**.

SECTION B - EMISSION POINTS, EMISSION UNITS, APPLICABLE REGULATIONS, AND OPERATING CONDITIONS (CONTINUED)

Subject Item K – Cold Cleaners

EP	Group	Equip. Desig.	Cons. Date	Description	Control Equipment	Maximum Capacity (gal/yr)
EMISSION GROUP 50						
152	50	9135	1/1996	Parts Washer, Garage (78)	Cover	210
153	50	9253	1/1996	Parts Washer, Cell Lining (78)	Cover	210
154	50	9134	1/1996	Parts Washer, Hydraulic Shop (78)	Cover	210
155	50	9136	1/1996	Parts Washer, Potlines (78)	Cover	210
156	50	9137	1/1996	Parts Washer, Carbon Bake (78)	Cover	210
157	50	9138	1/1996	Parts Washer, Casthouse (78)	Cover	210
158	50	9139	1/1996	Parts Washer, Rodding (78)	Cover	210
163	50	-	9/2021	Parts Washer, Used Oil Building (78)	Cover	180

APPLICABLE REGULATIONS:

401 KAR 59:185, *New solvent metal cleaning equipment*

1. Operating Limitations:

- a. Waste solvent shall not be disposed of or transferred to another party so that greater than twenty (20) percent by weight of the waste solvent can evaporate into the atmosphere. Waste solvent shall be stored only in covered containers. [401 KAR 59:185, Section 4(2)(a)]
- b. The degreaser cover shall be closed if not handling parts in the cleaner. [401 KAR 59:185, Section 4(2)(b)]
- c. Cleaned parts shall be drained for a minimum of fifteen (15) seconds, or until dripping ceases, whichever is longer. [401 KAR 59:185, Section 4(2)(c)]
- d. The flushing of parts with a flexible hose or other flushing device shall be performed only within the freeboard area of the cold cleaner. The solvent flow shall be directed downward to avoid turbulence at the air-solvent interface so as to prevent the solvent from splashing outside of the cold cleaner. [401 KAR 59:185, Section 4(2)(d)]
- e. Work area fans shall be positioned so that air is not directed across the opening of the cold cleaner. [401 KAR 59:185, Section 4(2)(e)]
- f. The use of an air-agitated solvent bath is prohibited. A pump-agitated solvent bath shall be operated so as to produce no observable splashing of the solvent against either the tank wall or the parts that are being cleaned. [401 KAR 59:185, Section 4(2)(f)]
- g. The cold cleaner shall be free of all liquid leaks. Auxiliary cleaning equipment such as pumps, water separators, steam traps, or distillation units shall not have any visible leaks, tears, or cracks. [401 KAR 59:185, Section 4(2)(g)]

SECTION B - EMISSION POINTS, EMISSION UNITS, APPLICABLE REGULATIONS, AND OPERATING CONDITIONS (CONTINUED)

- h. Spills that occur during solvent transfer shall be cleaned immediately. Wipe rags, or other absorbent equipment and materials, used to clean the spill shall be stored in a covered container for disposal unless storage of these items is prohibited by fire protection authorities. [401 KAR 59:185, Section 4(2)(h)]

2. Emission Limitations:

The permittee shall install, maintain and operate the control equipment and observe at all times the operating requirements that apply to this type of degreaser as specified in 401 KAR 59:185, Section 4. [401 KAR 59:185, Section 3]

3. Testing Requirements:

Pursuant to 401 KAR 59:005, Section 2(2) and 401 KAR 50:045, Section 1, performance testing using the reference methods specified in 401 KAR 50:015 shall be conducted if required by the Cabinet.

4. Specific Monitoring Requirements:

- a. The permittee shall monitor the annual solvent usage for each cold cleaner in gallons. [401 KAR 52:020, Section 10]
- b. Refer to **SECTION F** for general monitoring requirements.

5. Specific Recordkeeping Requirements:

- a. The permittee shall maintain records of the annual solvent usage for each cold cleaner in gallons. [401 KAR 52:020, Section 10]
- b. Refer to **SECTION F** for general recordkeeping requirements.

6. Specific Reporting Requirements:

Refer to **SECTION F** for general reporting requirements.

7. Specific Control Equipment Operating Conditions:

- a. Each cleaner shall be equipped with a cover. If the solvent volatility is greater than fifteen (15) mm Hg measured at 100°F or if the solvent is agitated or heated, then the cover shall be designed so that it can be easily operated with one (1) hand. [401 KAR 59:185, Section 4(1)(a)]
- b. Each cleaner shall be equipped with a drainage facility so that solvent that drains off parts removed from the cleaner will return to the cleaner. If the solvent volatility is greater than thirty-two (32) mm Hg measured at 100°F then the drainage facility shall be internal so that parts are enclosed under the cover while draining. The drainage facility may be external if the cabinet determines that an internal type cannot fit into the cleaning system. [401 KAR 59:185, Section 4(1)(b)]
- c. A permanent, conspicuous label, summarizing the operating requirements specified in 401 KAR 59:185, Section 4(2) shall be installed on or near the cleaner. [401 KAR 59:185, Section 4(1)(c)]

SECTION B - EMISSION POINTS, EMISSION UNITS, APPLICABLE REGULATIONS, AND OPERATING CONDITIONS (CONTINUED)

- d. If used, the solvent spray shall be a fluid stream, not a fine, atomized or shower type spray, and at a pressure that does not cause excessive splashing. [401 KAR 59:185, Section 4(1)(d)]
- e. If the solvent volatility is greater than thirty-two (32) mm Hg measured at 100°F or if the solvent is heated above 120°F, then one (1) of the following control devices shall be used: [401 KAR 59:185, Section 4(1)(e)]
 - i. Freeboard height that gives a freeboard ratio greater than or equal to seven-tenths (0.7); [401 KAR 59:185, Section 4(1)(e)(1.)]
 - ii. Water cover, solvent shall be insoluble in and heavier than water; or [401 KAR 59:185, Section 4(1)(e)(2.)]
 - iii. Other systems of equivalent control, such as a refrigerated chiller or carbon adsorption. [401 KAR 59:185, Section 4(1)(e)(3.)]
- f. Refer to **SECTION E**.

8. Compliance Schedule:
Refer to **SECTION I**.

SECTION C - INSIGNIFICANT ACTIVITIES

The following listed activities have been determined to be insignificant activities for this source pursuant to 401 KAR 52:020, Section 6. Although these activities are designated as insignificant the permittee must comply with the applicable regulation. Process and emission control equipment at each insignificant activity subject to an opacity standard shall be inspected monthly and a qualitative visible emissions evaluation made. Results of the inspection, evaluation, and any corrective action shall be recorded in a log.

Insig Item #	Group	Equip. Desig.	Description	Generally Applicable Regulation
1	31	2022	Cooling Conveyor, Green Anode (32)	NA
2	31	2028	Cooling Conveyor, Green Anode (32)	NA
4	31	2052	Cooling Tower, Green Carbon	401 KAR 59:010
5	31	0035	Tank, Hot Oil, 5,280 Gallon	NA
6	33	0228	Cooling Tower, Scrubber	401 KAR 59:010
7	34	0006	Dryer, Anode Hole – Natural Gas	401 KAR 61:020; 401 KAR 63:020
8	34	0132	Press #1, Thimble, North	NA
9	34	0134	Press #2, Thimble, South	NA
10	34	2004	Straightener, Rod	NA
11	34	2033	Tank, Graphite Dip	401 KAR 59:010
12	34	0144	Dryer, Stub – Natural Gas	401 KAR 61:020; 401 KAR 63:020
13	34	2049	Dryer, Scrap Anode – Natural Gas	401 KAR 61:020; 401 KAR 63:020
14	34	0160	Cooling Tower, North, Rodding	401 KAR 59:010
15	34	0158	Cooling Tower, South, Rodding	401 KAR 59:010
16	42	0811	Cooling Tower, Rectifier Line 1A (24)	401 KAR 59:010
17	42	2001	Cooling Tower, Rectifier Line 1B (24)	401 KAR 59:010
18	42	0821	Cooling Tower, Rectifier Line 2A (24)	401 KAR 59:010
19	42	2002	Cooling Tower, Rectifier Line 2B (24)	401 KAR 59:010
20	42	0831	Cooling Tower, Rectifier Line 3A (24)	401 KAR 59:010
21	42	2003	Cooling Tower, Rectifier Line 3B (24)	401 KAR 59:010
22	42	0841	Cooling Tower, Rectifier Line 4A (24)	401 KAR 59:010
23	42	2004	Cooling Tower, Rectifier Line 4B (24)	401 KAR 59:010
24	42	0855	Cooling Tower, Rectifier Line 5A	401 KAR 59:010
25	42	0865	Cooling Tower, Rectifier Line 5B	401 KAR 59:010
26	44	3000	Casting, Sow	401 KAR 59:010
27	50	4702	Spent Potliner Building (45)	401 KAR 59:010
28	50	5508	Shell Repair Welding (45)	401 KAR 59:010; 401 KAR 63:020
29	50	-	Welding, Maintenance	401 KAR 59:010; 401 KAR 63:020
33	50	3019	Tank, Kerosene, 1,000 Gallon (55)	401 KAR 63:020
34	50	9108	Tanks, Propane System (78)	401 KAR 63:020
35	50	4310	Tank, Diesel, 550 Gallon (45)	401 KAR 63:020
36	50	4410	Tank, Kerosene, 300 Gallon (45)	401 KAR 63:020
37	50	3036	Tank, Used Oil, 5,000 Gallon (45)	401 KAR 63:020
38	50	0242	Tank, Rectifier Oil #1, 10,000 Gallon (23)	401 KAR 63:020
39	50	0242	Tank, Rectifier Oil #2, 10,000 Gallon (23)	401 KAR 63:020
40	50	0242	Tank, Rectifier Oil #3, 10,000 Gallon (23)	401 KAR 63:020
41	50	3753	Tank, Oil, Mobile, 500 Gallon (12)	401 KAR 63:020
42	50	9131	Tank, Gasoline AST, 15,000 Gallon (78)	401 KAR 63:020
43	50	9132	Tank, Diesel AST, 15,000 Gallon (78)	401 KAR 63:020

SECTION C - INSIGNIFICANT ACTIVITIES (CONTINUED)

Insig Item #	Group	Equip. Desig.	Description	Generally Applicable Regulation
44	50	9128	Tank, Used Oil, 470 Gallon (78)	401 KAR 63:020
50	50	2033	Cooling Tower, Compressors 1-5 (53)	401 KAR 59:010
51	50	2014	Cooling Tower, Marley (53)	401 KAR 59:010
52	50	2043	Cooling Tower, Compressors 6-7 (53)	401 KAR 59:010
56	44		Casthouse Dross Press	401 KAR 63:010
57	44		Casthouse Dross Handling	401 KAR 63:010
58	44	3004	Cooling Tower, DC Pit (45)	401 KAR 59:010
59	34		In-Line Anode Rod Casting (Primary Line)	NA
60	34		In-Line Anode Rod Casting (Backup Line)	NA
61	50		Vehicle Cleaning Operations	401 KAR 63:010

SECTION D - SOURCE EMISSION LIMITATIONS AND TESTING REQUIREMENTS

1. As required by Section 1b of the *Cabinet Provisions and Procedures for Issuing Title V Permits* incorporated by reference in 401 KAR 52:020, Section 26; compliance with annual emissions and processing limitations contained in this permit, shall be based on emissions and processing rates for any twelve (12) consecutive months.
2. PM, PM₁₀, PM_{2.5}, CO, NO_x, SO₂, VOC, F, HF, POM, COS, and opacity emissions, measured by applicable reference methods, or an equivalent or alternative method specified in 40 C.F.R. Chapter I, or by a test method specified in the state implementation plan shall not exceed the respective limitations specified herein.
3. **NO_x Emissions:** NO_x emissions from Potlines #1-4 (stack and roof monitors) and Anode Bake Furnaces #1-3 shall not exceed 268.67 tons per year based on a 12-month rolling total. [To preclude 401 KAR 51:017, Sections 8 to 16]

Compliance Demonstration Method:

At the beginning of each month, the preceding month's NO_x emissions in tons shall be calculated and recorded using the equations below. The annual emissions for each rolling 12-month period shall be calculated every month and kept available at the plant site.

$$E_{NOx(Stack)_i} = \frac{P_i \times EF_{NOx(Stack)}}{2000} \text{ and } E_{NOx(Roof)_i} = \frac{P_i \times EF_{NOx(Roof)}}{2000} \text{ and}$$

$$E_{NOx(ABF)_i} = \frac{A_i \times \frac{P_i}{P_{5i}} \times EF_{NOx(ABF)}}{2000}$$

$$T_{NOx_{year}} = \sum_{i=1}^{12} E_{NOx(Stack)_i} + E_{NOx(Roof)_i} + E_{NOx(ABF)_i}$$

Where:

$E_{NOx(Stack)_i}$ = NO_x emissions from Potlines 1-4 stack during month i , in tons/month;

$E_{NOx(Roof)_i}$ = NO_x emissions from Potlines 1-4 roof monitor during month i , in tons/month;

$E_{NOx(ABF)_i}$ = NO_x emissions from Anode Bake Furnaces #1-3 stack during month i , in tons/month;

P_i = Monthly production rate from Potlines 1-4 during month i , in tons of aluminum/month (sum of daily totals);

P_{5i} = Monthly production rate from Potlines 1-5 during month i , in tons of aluminum/month (sum of daily totals);

A_i = Total monthly anodes processed during month i , in green tons/month;

$EF_{NOx(Stack)}$ = Stack emission factor for NO_x calculated using the results of the most recent performance test on Potline #1-4, in pounds of NO_x per ton of aluminum;

$EF_{NOx(Roof)}$ = Roof monitor emission factor for NO_x calculated using the results of the most recent performance test on Potline #1-4, in pounds of NO_x per ton of

SECTION D - SOURCE EMISSION LIMITATIONS AND TESTING REQUIREMENTS (CONTINUED)

- aluminum;
- $EF_{NOx(ABF)}$ = Stack emission factor for NO_x calculated using the results of the most recent performance test on Anode Bake Furnaces #1-3, in pounds of NO_x per green ton;
- $T_{NOx_{year}}$ = 12-month rolling total combined NO_x emissions from Potlines #1-4 stack and roof monitor and Anode Bake Furnaces #1-3 in the previous 12 months, in tons/year.

Note: The monthly production rate is the sum of daily totals.

4. Source-wide gaseous fluorides shall not exceed the amounts that violate, or interfere with the attainment or maintenance of, ambient air quality standards as specified in 401 KAR 53:010 and the following concentrations: [401 KAR 53:005, Section 1(3)]

Primary Standards:	Annual Average:	400 $\mu\text{g}/\text{m}^3$ (0.5 ppm)
	Maximum 24 Hour Average:	800 $\mu\text{g}/\text{m}^3$ (1.0 ppm)
Secondary Standards:	Maximum monthly average:	0.82 $\mu\text{g}/\text{m}^3$ (1.0 ppb)
	Maximum weekly average:	1.64 $\mu\text{g}/\text{m}^3$ (2.0 ppb)
	Maximum 24-hour average:	2.86 $\mu\text{g}/\text{m}^3$ (3.5 ppb)
	Maximum 12-hour average:	3.68 $\mu\text{g}/\text{m}^3$ (4.5 ppb)

5. Source-wide total fluorides emissions shall not exceed the amounts that violate, or interfere with the attainment or maintenance of, ambient air quality standards as specified in 401 KAR 53:010 and the following concentrations: [401 KAR 53:005, Section 1(3)]

Dry weight basis (as fluoride ion) in and on forage for consumption by grazing ruminants:

Secondary Standards:	Growing Season:	40 ppm
	Two-Month Average:	60 ppm
	One-month average:	80 ppm

Compliance Demonstration:

To provide reasonable assurance that ambient standards are being met, the source shall demonstrate compliance by the following methods or other Division approved method:

- A. The permittee shall comply with the terms in 401 KAR 61:165 and the requirements in this permit.
- B. The permittee shall submit to the Division quarterly ambient monitoring data reports. If either the maximum 24-hour average primary standard or any of the secondary standards for HF listed above and defined in 401 KAR 53:010, Appendix A, are exceeded more than once annually, than any subsequent exceedance is a violation. The reports shall clearly identify any exceedances of the ambient standards.
- C. The permittee shall operate and maintain 6 permanently located monitoring sites for the monitoring of gaseous fluorides, particulate matter, and forage sampling for total fluoride determination. These sites shall be located at the following coordinates: [AO V76-414, "the 1979 Agreed Order"]

SECTION D - SOURCE EMISSION LIMITATIONS AND TESTING REQUIREMENTS (CONTINUED)

Site Number	Northing	Easting
1	37°56'59.78"N	86°47'35.73"W
2	37°54'52.95"N	86°47'17.17"W
3	37°55'58.27"N	86°45'8.66"W
4	37°57'4.40"N	86°46'26.18"W
5	37°58'13.47"N	86°46'5.73"W
6	37°59'30.74"N	86°47'28.44"W

- D. In the event of a recorded violation of the HF standard as listed above and defined in 401 KAR 53:010, Appendix A, the Division shall require that remedial measures be initiated from the source(s) responsible for causing said violation. [401 KAR 61:165, Section 4(2)] This includes, but is not limited to:
- A corrective action plan, identifying possible causes for the exceedances and remedies initiated; and
 - A follow-up testing plan to ensure that the exceedance of the standard has been remedied.

SECTION E - SOURCE CONTROL EQUIPMENT REQUIREMENTS

Pursuant to 401 KAR 50:055, Section 2(5), at all times, including periods of startup, shutdown and malfunction, owners and operators shall, to the extent practicable, maintain and operate any affected facility including associated air pollution control equipment in a manner consistent with good air pollution control practice for minimizing emissions. Determination of whether acceptable operating and maintenance procedures are being used will be based on information available to the Division which may include, but is not limited to, monitoring results, opacity observations, review of operating and maintenance procedures, and inspection of the source.

SECTION F - MONITORING, RECORDKEEPING, AND REPORTING REQUIREMENTS

1. Pursuant to Section 1b-IV-1 of the *Cabinet Provisions and Procedures for Issuing Title V Permits* incorporated by reference in 401 KAR 52:020, Section 26, when continuing compliance is demonstrated by periodic testing or instrumental monitoring, the permittee shall compile records of required monitoring information that include:
 - a. Date, place as defined in this permit, and time of sampling or measurements;
 - b. Analyses performance dates;
 - c. Company or entity that performed analyses;
 - d. Analytical techniques or methods used;
 - e. Analyses results; and
 - f. Operating conditions during time of sampling or measurement.
2. Records of all required monitoring data and support information, including calibrations, maintenance records, and original strip chart recordings, and copies of all reports required by the Division for Air Quality, shall be retained by the permittee for a period of five (5) years and shall be made available for inspection upon request by any duly authorized representative of the Division for Air Quality [Sections 1b-IV-2 and 1a-8 of the *Cabinet Provisions and Procedures for Issuing Title V Permits* incorporated by reference in 401 KAR 52:020, Section 26].
3. In accordance with the requirements of 401 KAR 52:020, Section 3(1)h, the permittee shall allow authorized representatives of the Cabinet to perform the following during reasonable times:
 - a. Enter upon the premises to inspect any facility, equipment (including air pollution control equipment), practice, or operation;
 - b. To access and copy any records required by the permit;
 - c. Sample or monitor, at reasonable times, substances or parameters to assure compliance with the permit or any applicable requirements.Reasonable times are defined as during all hours of operation, during normal office hours; or during an emergency.
4. No person shall obstruct, hamper, or interfere with any Cabinet employee or authorized representative while in the process of carrying out official duties. Refusal of entry or access may constitute grounds for permit revocation and assessment of civil penalties.
5. Summary reports of any monitoring required by this permit shall be submitted to the Regional Office listed on the front of this permit at least every six (6) months during the life of this permit, unless otherwise stated in this permit. For emission units that were still under construction or which had not commenced operation at the end of the 6-month period covered by the report and are subject to monitoring requirements in this permit, the report shall indicate that no monitoring was performed during the previous six months because the emission unit was not in operation [Sections 1b-V-1 of the *Cabinet Provisions and Procedures for Issuing Title V Permits* incorporated by reference in 401 KAR 52:020, Section 26].

SECTION F - MONITORING, RECORDKEEPING, AND REPORTING REQUIREMENTS (CONTINUED)

6. The semi-annual reports are due by January 30th and July 30th of each year. All reports shall be certified by a responsible official pursuant to 401 KAR 52:020, Section 23. If continuous emission and opacity monitors are required by regulation or this permit, data shall be reported in accordance with the requirements of 401 KAR 59:005, General Provisions, Section 3(3). All deviations from permit requirements shall be clearly identified in the reports.
7. In accordance with the provisions of 401 KAR 50:055, Section 1, the owner or operator shall notify the Regional Office listed on the front of this permit concerning startups, shutdowns, or malfunctions as follows:
 - a. When emissions during any planned shutdowns and ensuing startups will exceed the standards, notification shall be made no later than three (3) days before the planned shutdown, or immediately following the decision to shut down, if the shutdown is due to events which could not have been foreseen three (3) days before the shutdown.
 - b. When emissions due to malfunctions, unplanned shutdowns and ensuing startups are or may be in excess of the standards, notification shall be made as promptly as possible by telephone (or other electronic media) and shall be submitted in writing upon request.
8. The permittee shall promptly report deviations from permit requirements, including those attributable to upset conditions as defined in the permit, the probable cause of such deviations, and any corrective actions or preventive measures taken shall be submitted to the Regional Office listed on the front of this permit. Where the underlying applicable requirement contains a definition of prompt or otherwise specifies a time frame for reporting deviations, that definition or time frame shall govern. Where the underlying applicable requirement does not identify a specific time frame for reporting deviations, prompt reporting, as required by Sections 1b-V, 3 and 4 of the *Cabinet Provisions and Procedures for Issuing Title V Permits* incorporated by reference in 401 KAR 52:020, Section 26, shall be defined as follows:
 - a. For emissions of a hazardous air pollutant or a toxic air pollutant (as identified in an applicable regulation) that continue for more than an hour in excess of permit requirements, the report must be made within 24 hours of the occurrence.
 - b. For emissions of any regulated air pollutant, excluding those listed in F.8.a., that continue for more than two hours in excess of permit requirements, the report must be made within 48 hours.
 - c. All deviations from permit requirements, including those previously reported, shall be included in the semiannual report required by F.6.
9. Pursuant to 401 KAR 52:020, Title V permits, Section 21, the permittee shall annually certify compliance with the terms and conditions contained in this permit, by completing and returning a Compliance Certification Form (DEP 7007CC) (or an alternative approved by the regional office) to the Regional Office listed on the front of this permit and the U.S. EPA in accordance with the following requirements:
 - a. Identification of the term or condition;
 - b. Compliance status of each term or condition of the permit;
 - c. Whether compliance was continuous or intermittent;

SECTION F - MONITORING, RECORDKEEPING, AND REPORTING REQUIREMENTS (CONTINUED)

- d. The method used for determining the compliance status for the source, currently and over the reporting period.
- e. For an emissions unit that was still under construction or which has not commenced operation at the end of the 12-month period covered by the annual compliance certification, the permittee shall indicate that the unit is under construction and that compliance with any applicable requirements will be demonstrated within the timeframes specified in the permit.
- f. The certification shall be submitted by January 30th of each year. Annual compliance certifications shall be sent to the following addresses:

Division for Air Quality
Owensboro Regional Office
3032 Alvey Park Dr. W., Ste 700
Owensboro, KY 42303

U.S. EPA Region IV
Air Enforcement Branch
Atlanta Federal Center
61 Forsyth St.
Atlanta, GA 30303-8960

- 10. In accordance with 401 KAR 52:020, Section 22, the permittee shall provide the Division with all information necessary to determine its subject emissions within 30 days of the date the Kentucky Emissions Inventory System (KYEIS) emissions survey is mailed to the permittee.

SECTION G - GENERAL PROVISIONS

1. General Compliance Requirements

- a. The permittee shall comply with all conditions of this permit. Noncompliance shall be a violation of 401 KAR 52:020, Section 3(1)(b), and a violation of Federal Statute 42 USC 7401 through 7671q (the Clean Air Act). Noncompliance with this permit is grounds for enforcement action including but not limited to termination, revocation and reissuance, revision or denial of a permit [Section 1a-3 of the *Cabinet Provisions and Procedures for Issuing Title V Permits* incorporated by reference in 401 KAR 52:020, Section 26].
- b. The filing of a request by the permittee for any permit revision, revocation, reissuance, or termination, or of a notification of a planned change or anticipated noncompliance, shall not stay any permit condition [Section 1a-6 of the *Cabinet Provisions and Procedures for Issuing Title V Permits* incorporated by reference in 401 KAR 52:020, Section 26].
- c. This permit may be revised, revoked, reopened and reissued, or terminated for cause in accordance with 401 KAR 52:020, Section 19. The permit will be reopened for cause and revised accordingly under the following circumstances:
 - (1) If additional applicable requirements become applicable to the source and the remaining permit term is three (3) years or longer. In this case, the reopening shall be completed no later than eighteen (18) months after promulgation of the applicable requirement. A reopening shall not be required if compliance with the applicable requirement is not required until after the date on which the permit is due to expire, unless this permit or any of its terms and conditions have been extended pursuant to 401 KAR 52:020, Section 12;
 - (2) The Cabinet or the United States Environmental Protection Agency (U. S. EPA) determines that the permit must be revised or revoked to assure compliance with the applicable requirements;
 - (3) The Cabinet or the U. S. EPA determines that the permit contains a material mistake or that inaccurate statements were made in establishing the emissions standards or other terms or conditions of the permit;
 - (4) New requirements become applicable to a source subject to the Acid Rain Program.

Proceedings to reopen and reissue a permit shall follow the same procedures as apply to initial permit issuance and shall affect only those parts of the permit for which cause to reopen exists. Reopenings shall be made as expeditiously as practicable. Reopenings shall not be initiated before a notice of intent to reopen is provided to the source by the Division, at least thirty (30) days in advance of the date the permit is to be reopened, except that the Division may provide a shorter time period in the case of an emergency.

- d. The permittee shall furnish information upon request of the Cabinet to determine if cause exists for modifying, revoking and reissuing, or terminating the permit; or to determine compliance with the conditions of this permit [Sections 1a- 7 and 8 of the *Cabinet Provisions and Procedures for Issuing Title V Permits* incorporated by reference in 401 KAR 52:020, Section 26].
- e. Emission units described in this permit shall demonstrate compliance with applicable requirements if requested by the Division [401 KAR 52:020, Section 3(1)(c)].

SECTION G - GENERAL PROVISIONS (CONTINUED)

- f. The permittee, upon becoming aware that any relevant facts were omitted or incorrect information was submitted in the permit application, shall promptly submit such supplementary facts or corrected information to the permitting authority [401 KAR 52:020, Section 7(1)].
- g. Any condition or portion of this permit which becomes suspended or is ruled invalid as a result of any legal or other action shall not invalidate any other portion or condition of this permit [Section 1a-14 of the *Cabinet Provisions and Procedures for Issuing Title V Permits* incorporated by reference in 401 KAR 52:020, Section 26].
- h. The permittee shall not use as a defense in an enforcement action the contention that it would have been necessary to halt or reduce the permitted activity in order to maintain compliance [Section 1a-4 of the *Cabinet Provisions and Procedures for Issuing Title V Permits* incorporated by reference in 401 KAR 52:020, Section 26].
- i. All emission limitations and standards contained in this permit shall be enforceable as a practical matter. All emission limitations and standards contained in this permit are enforceable by the U.S. EPA and citizens except for those specifically identified in this permit as state-origin requirements. [Section 1a-15 of the *Cabinet Provisions and Procedures for Issuing Title V Permits* incorporated by reference in 401 KAR 52:020, Section 26].
- j. This permit shall be subject to suspension if the permittee fails to pay all emissions fees within 90 days after the date of notice as specified in 401 KAR 50:038, Section 3(6) [Section 1a-10 of the *Cabinet Provisions and Procedures for Issuing Title V Permits* incorporated by reference in 401 KAR 52:020, Section 26].
- k. Nothing in this permit shall alter or affect the liability of the permittee for any violation of applicable requirements prior to or at the time of permit issuance [401 KAR 52:020, Section 11(3) b].
- l. This permit does not convey property rights or exclusive privileges [Section 1a-9 of the *Cabinet Provisions and Procedures for Issuing Title V Permits* incorporated by reference in 401 KAR 52:020, Section 26].
- m. Issuance of this permit does not relieve the permittee from the responsibility of obtaining any other permits, licenses, or approvals required by the Cabinet or any other federal, state, or local agency.
- n. Nothing in this permit shall alter or affect the authority of U.S. EPA to obtain information pursuant to Federal Statute 42 USC 7414, Inspections, monitoring, and entry [401 KAR 52:020, Section 11(3) d.].
- o. Nothing in this permit shall alter or affect the authority of U.S. EPA to impose emergency orders pursuant to Federal Statute 42 USC 7603, Emergency orders [401 KAR 52:020, Section 11(3) a.].

SECTION G - GENERAL PROVISIONS (CONTINUED)

- p. This permit consolidates the authority of any previously issued PSD, NSR, or Synthetic Minor source preconstruction permit terms and conditions for various emission units and incorporates all requirements of those existing permits into one single permit for this source.
- q. Pursuant to 401 KAR 52:020, Section 11, a permit shield shall not protect the owner or operator from enforcement actions for violating an applicable requirement prior to or at the time of permit issuance. Compliance with the conditions of this permit shall be considered compliance with:
 - (1) Applicable requirements that are included and specifically identified in this permit; and
 - (2) Non-applicable requirements expressly identified in this permit.

2. Permit Expiration and Reapplication Requirements

- a. This permit shall remain in effect for a fixed term of five (5) years following the original date of issue. Permit expiration shall terminate the source's right to operate unless a timely and complete renewal application has been submitted to the Division at least six (6) months prior to the expiration date of the permit. Upon a timely and complete submittal, the authorization to operate within the terms and conditions of this permit, including any permit shield, shall remain in effect beyond the expiration date, until the renewal permit is issued or denied by the Division [401 KAR 52:020, Section 12].
- b. The authority to operate granted shall cease to apply if the source fails to submit additional information requested by the Division after the completeness determination has been made on any application, by whatever deadline the Division sets [401 KAR 52:020, Section 8(2)].

3. Permit Revisions

- a. A minor permit revision procedure may be used for permit revisions involving the use of economic incentive, marketable permit, emission trading, and other similar approaches, to the extent that these minor permit revision procedures are explicitly provided for in the State Implementation Plan (SIP) or in applicable requirements and meet the relevant requirements of 401 KAR 52:020, Section 14(2).
- b. This permit is not transferable by the permittee. Future owners and operators shall obtain a new permit from the Division for Air Quality. The new permit may be processed as an administrative amendment if no other change in this permit is necessary, and provided that a written agreement containing a specific date for transfer of permit responsibility coverage and liability between the current and new permittee has been submitted to the permitting authority within ten (10) days following the transfer.

4. Construction, Start-Up, and Initial Compliance Demonstration Requirements

No construction authorized by this permit. (V-24-010)

SECTION G - GENERAL PROVISIONS (CONTINUED)**5. Testing Requirements**

- a. Pursuant to 401 KAR 50:045, Section 2, a source required to conduct a performance test shall submit a completed Compliance Test Protocol form, DEP form 6028, or a test protocol a source has developed for submission to other regulatory agencies, in a format approved by the cabinet, to the Division's Frankfort Central Office a minimum of sixty (60) days prior to the scheduled test date. Pursuant to 401 KAR 50:045, Section 7, the Division shall be notified of the actual test date at least thirty (30) days prior to the test.
- b. Pursuant to 401 KAR 50:045, Section 5, in order to demonstrate that a source is capable of complying with a standard at all times, any required performance test shall be conducted under normal conditions that are representative of the source's operations and create the highest rate of emissions. If [When] the maximum production rate represents a source's highest emissions rate and a performance test is conducted at less than the maximum production rate, a source shall be limited to a production rate of no greater than 110 percent of the average production rate during the performance tests. If and when the facility is capable of operation at the rate specified in the application, the source may retest to demonstrate compliance at the new production rate. The Division for Air Quality may waive these requirements on a case-by-case basis if the source demonstrates to the Division's satisfaction that the source is in compliance with all applicable requirements.
- c. Results of performance test(s) required by the permit shall be submitted to the Division by the source or its representative within forty-five days or sooner if required by an applicable standard, after the completion of the fieldwork.

6. Acid Rain Program Requirements

- a. If an applicable requirement of Federal Statute 42 USC 7401 through 7671q (the Clean Air Act) is more stringent than an applicable requirement promulgated pursuant to Federal Statute 42 USC 7651 through 7651o (Title IV of the Act), both provisions shall apply, and both shall be state and federally enforceable.
- b. The permittee shall comply with all applicable requirements and conditions of the Acid Rain Permit and the Phase II permit application (including the Phase II NOx compliance plan and averaging plan, if applicable) incorporated into the Title V permit issued for this source. The source shall also comply with all requirements of any revised or future acid rain permit(s) issued to this source.

7. Emergency Provisions

- a. Pursuant to 401 KAR 52:020, Section 24(1), an emergency shall constitute an affirmative defense to an action brought for the noncompliance with the technology-based emission limitations if the permittee demonstrates through properly signed contemporaneous operating logs or relevant evidence that:
 - (1) An emergency occurred and the permittee can identify the cause of the emergency;
 - (2) The permitted facility was at the time being properly operated;

SECTION G - GENERAL PROVISIONS (CONTINUED)

- (3) During an emergency, the permittee took all reasonable steps to minimize levels of emissions that exceeded the emissions standards or other requirements in the permit; and
 - (4) Pursuant to 401 KAR 52:020, 401 KAR 50:055, and KRS 224.1-400, the permittee notified the Division as promptly as possible and submitted written notice of the emergency to the Division when emission limitations were exceeded due to an emergency. The notice shall include a description of the emergency, steps taken to mitigate emissions, and corrective actions taken.
 - (5) This requirement does not relieve the source of other local, state or federal notification requirements.
 - b. Emergency conditions listed in General Condition G.7.a above are in addition to any emergency or upset provision(s) contained in an applicable requirement [401 KAR 52:020, Section 24(3)].
 - c. In an enforcement proceeding, the permittee seeking to establish the occurrence of an emergency shall have the burden of proof [401 KAR 52:020, Section 24(2)].
8. Ozone Depleting Substances
- a. The permittee shall comply with the standards for recycling and emissions reduction pursuant to 40 CFR 82, Subpart F, except as provided for Motor Vehicle Air Conditioners (MVACs) in Subpart B:
 - (1) Persons opening appliances for maintenance, service, repair, or disposal shall comply with the required practices contained in 40 CFR 82.156.
 - (2) Equipment used during the maintenance, service, repair, or disposal of appliances shall comply with the standards for recycling and recovery equipment contained in 40 CFR 82.158.
 - (3) Persons performing maintenance, service, repair, or disposal of appliances shall be certified by an approved technician certification program pursuant to 40 CFR 82.161.
 - (4) Persons disposing of small appliances, MVACs, and MVAC-like appliances (as defined at 40 CFR 82.152) shall comply with the recordkeeping requirements pursuant to 40 CFR 82.155.
 - (5) Persons owning commercial or industrial process refrigeration equipment shall comply with the leak repair requirements pursuant to 40 CFR 82.156 and 40 CFR 82.157.
 - (6) Owners/operators of appliances normally containing 50 or more pounds of refrigerant shall keep records of refrigerant purchased and added to such appliances pursuant to 40 CFR 82.166.
 - b. If the permittee performs service on motor (fleet) vehicle air conditioners containing ozone-depleting substances, the source shall comply with all applicable requirements as specified in 40 CFR 82, Subpart B, *Servicing of Motor Vehicle Air Conditioners*.

SECTION G - GENERAL PROVISIONS (CONTINUED)

9. Risk Management Provisions

- a. The permittee shall comply with all applicable requirements of 401 KAR Chapter 68, Chemical Accident Prevention, which incorporates by reference 40 CFR Part 68, Risk Management Plan provisions. If required, the permittee shall comply with the Risk Management Program and submit a Risk Management Plan to U.S. EPA using the RMP* eSubmit software.
- b. If requested, submit additional relevant information to the Division or the U.S. EPA.

SECTION H - ALTERNATE OPERATING SCENARIOS

None

SECTION I - COMPLIANCE SCHEDULE

This section contains compliance schedule requirements as specified by Section 1c of the *Cabinet Provisions and Procedures for Issuing Title V Permits* incorporated by reference in 401 KAR 52:020, Section 26.

1. Pursuant to 401 KAR 50:055, Section 3, the permittee shall demonstrate compliance (including initial stack testing for all sources with a requirement to perform stack testing in Section B) with the applicable standards within 60 days after achieving the production rate at which the affected facility will be operated, but not later than 180 days after commencing operations.
2. If and when Century plans to begin or restart aluminum production, Century shall give a minimum of 90 days written notice to the Division of the expected date operations are planned or scheduled to resume.
3. The permittee shall submit written notice to the Division at least 90 days before the planned startup for each emission point that is shutdown at the time of final permit issuance (V-24-010). For units subject to 40 CFR 63, Subpart LL, this notification shall include a current copy of the startup plan for the unit.
4. No later than 180 days prior to the planned restart of any units at the facility, the permittee shall submit to the Division's Permit Review Branch an analysis of the applicability of the requirements of 401 KAR 51:017 to the restart of the shutdown facility, including information regarding the planned restart process and a listing of any physical changes or changes in the method of operation for each unit that are necessary to facilitate the restart, if any. These changes constitute a modification under 401 KAR 51:017, and accordingly the permittee shall simultaneously submit a significant revision application under 401 KAR 52:020 for the modification.
5. Upon the restart of aluminum production, Century will resume complying with the ambient monitoring requirements of the 1979 Agreed Order (V76-414) Appendix C.
6. No later than 180 days prior to the restart of aluminum production, Century may submit a technical demonstration and proposal to the Cabinet that supports terminating the 1979 Agreed Order (V76-414) and replacing it with fluoride ambient monitoring requirements in this Title V permit that are consistent with 401 KAR 61:165. The technical demonstration must be supported by data showing that fluoride emissions are being limited, or have since been reduced, to a level warranting rescission of the ambient monitoring requirements in the 1979 Agreed Order (V76-414). Any proposal to revise, amend, or the 1979 Agreed Order (V76-414) shall conform to the current regulatory requirements of the facility and be protective of human health and the environment. Pursuant to 401 KAR 61:165, Century is required to conduct ambient monitoring at one location, at a minimum, and the Cabinet has the discretion to prescribe additional locations, if necessary. Upon review of the technical demonstration and proposal, the Cabinet may, in whole or in part; (1) accept; or (2) disapprove and provide comments to Century identifying any deficiencies with the proposal, request additional information regarding the proposal, or request additional data or a technical demonstration of any proposal.

APPENDIX A

40 CFR 64

COMPLIANCE ASSURANCE MONITORING
(CAM) PLANS

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1. INTRODUCTION

Under 40 CFR 64, the Compliance Assurance Monitoring (CAM) regulations, facilities are required to prepare and submit monitoring plans for certain emission units with a Title V application. The CAM plans are intended to document methods that will provide on-going and reasonable assurance of compliance with emission limits. Pursuant to §64.2(a), the CAM regulations apply to a pollutant-specific emissions unit (PSEU), as defined in §64.1, at a major Title V source if the following criteria are met:

1. The PSEU is subject to an emission limitation or standard for the regulated pollutant, other than an emission limitation or standard that is exempt under §64.2(b);
2. The PSEU uses a control device as defined in §64.1 to achieve compliance with the emission limitation; and
3. The PSEU has potential pre-controlled emissions of the applicable regulated air pollutant that are equal to or greater than Title V major source thresholds.

An analysis of applicability to CAM for each PSEU at the Hawesville Plant was provided in Table 4-1 of the August 15, 2015 Title V permit renewal application. For CAM-applicable PSEUs, the existing CAM Plans on file and/or existing monitoring methods already prescribed in the Title V permit were cross-referenced at that time. However, per a request from the Kentucky Division for Air Quality (KDAQ), updated and revised CAM Plans for PSEU's subject to CAM have now been prepared and are provided in this attachment, with the exception of the Green Carbon Mixing Area (Source ID 28) for the reasons explained further below.

The CAM Plans being provided are listed as follows in the order appearing in this attachment:

- Potlines 1-4 (EP 84b): CAM Plans for PM/PM₁₀ and SO₂
- Potline 5 (EP 89): CAM Plan for PM/PM₁₀.
- Anode Bake Furnaces (EP 41b): CAM Plan for PM/PM₁₀.
- Anode Butt and Anode Rod Shot Blast Cleaners (EP 66): CAM Plan for PM/PM₁₀

In the CAM Plans, references to the "Century EDN" refer to the Century Equipment Designation Number. These EDNs were shown in the emission unit index table and on the process flow diagrams included in Appendices B and C, respectively, of the August 15, 2015 Title V permit renewal application. The CAM Plans also list the KyEIS Source ID for each emission unit. In all cases, this ID number is the same as the Emission Point ID number used in the Title V permit.

1.1 GREEN CARBON MIXING AREA CAM APPLICABILITY

Uncontrolled potential emissions from the Green Carbon Mixing operations (Source ID 28) are estimated to exceed the major source thresholds for PM/PM₁₀ and polycyclic organic matter (POM). Century operates and maintains the Dry Coke Scrubber for the purpose of controlling PM/PM₁₀ and POM emissions from the Green Carbon Mixing operations to meet the emission limit and work practice standards under 40 CFR 63.843(b). Thus, these operations are potentially subject to CAM requirements. However, pursuant to 40 CFR 64.2(b)(1)(i), because the PM and POM emission standards from 40 CFR 63, Subpart LL were proposed and promulgated by EPA after November 15, 1990 under Section 112 of the Clean Air Act, the Green Carbon Mixing Area is exempt from the requirements of the CAM rule for these pollutants and standards.

The Green Carbon Mixing operations are also subject to PM/PM₁₀ and POM (VOC) emission limits labeled in the current Title V permit as PSD avoidance emission limits. The 40 CFR 63, Subpart LL monitoring provisions for

PM and POM are acceptable for CAM for these operations pursuant to 40 CFR 64.4(b)(4). These methods are already documented in the parametric monitoring plan prepared in accordance with 40 CFR 63.848(f); therefore, a CAM Plan for PM/PM₁₀ and POM (VOC) for this process unit would be duplicative of the 40 CFR 63, Subpart LL monitoring plan.

2.1 EMISSION UNITS AND CONTROL DEVICE DESCRIPTION

Emission Unit Name:	Potlines 1-4
Emission Group:	42 (Potlines)
Century EDN:	4200; 4220; 4230; 4240
KyEIS Equipment ID:	EQPT0000000185
KyEIS Source ID:	84b
KyEIS Process ID:	1-4
Control Device:	Multiclone and ESP portion of the Wet Scrubber System (43-2001)

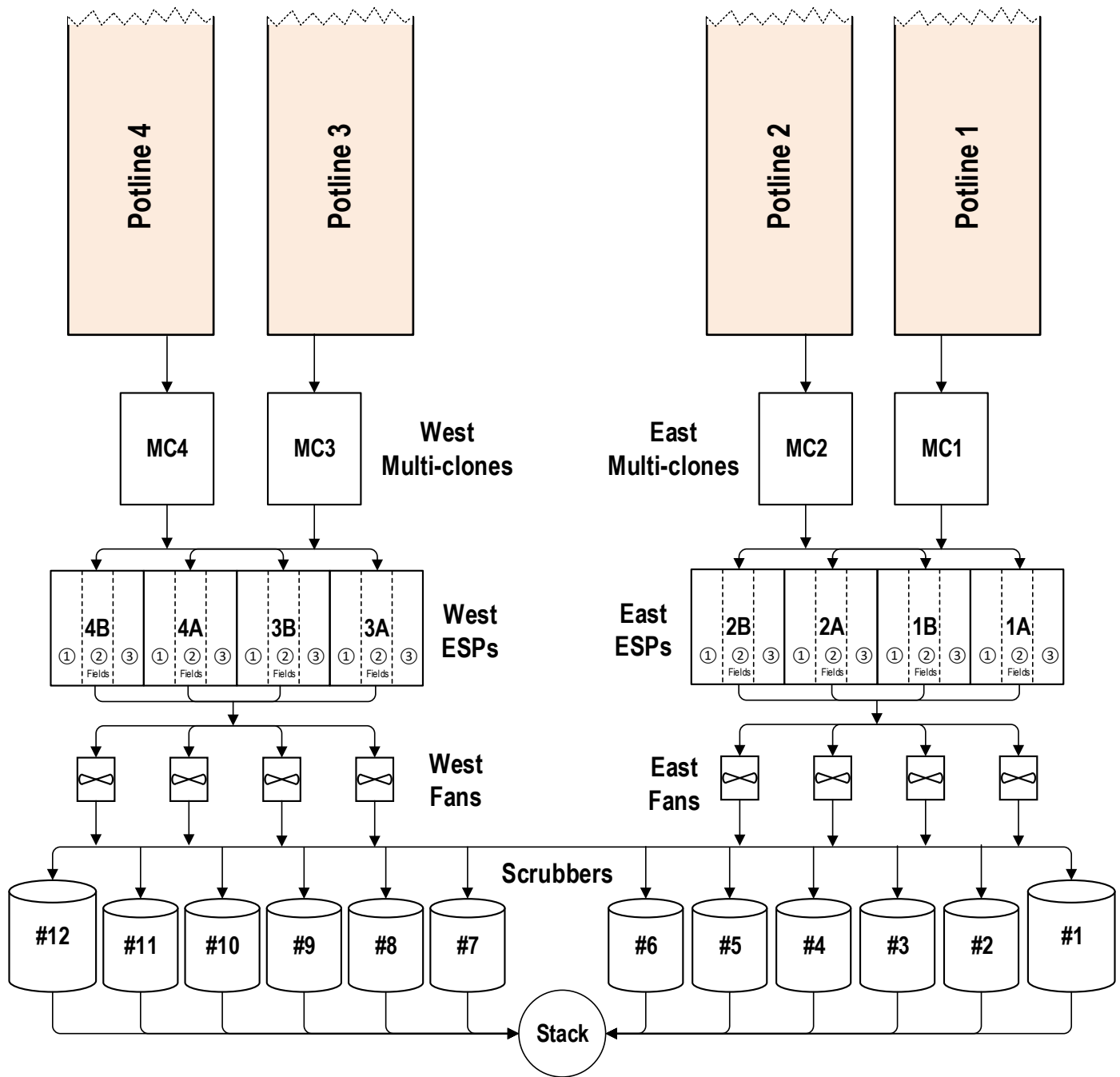
The aluminum reduction process takes place in rectangular structures called pots. A line of pots that are connected electrically in series is known as a potline. There are five potlines at the Hawesville Plant, and each consists of 112 individual pots. The pots contain a bath of molten cryolite (sodium aluminum fluoride) into which dry alumina is added (dissolved). Anodes are lowered into the bath, and current flows from the anode, through the bath, and into the carbon potlining (cathode). The current flow serves to heat the pot and keep the bath molten, and provides the energy for the electrolytic reduction of the alumina to aluminum, which accumulates as a molten aluminum layer as the aluminum settles to the bottom of the bath.

The pots are run in a semi-continuous batch mode during which alumina is periodically added and molten aluminum tapped (removed). The pots are hooded, and the exhaust gasses produced during the electrochemical reaction are captured and directed to the emission control system. The hoods are made up of individual sections called shields that are removed when the pot needs to be worked.

Due to the need to periodically add alumina and to replace anodes as they are consumed, the pots are not completely sealed structures. Therefore, not all of the exhaust is collected by the fume hood venting system. Secondary emissions from this process are released through the roof monitors (vents) that run the length of each potroom (the buildings that house each potline). The secondary emissions are minimized by standard operating procedures that are enacted to limit the amount of time the pot shields are removed and by properly governing the electrochemical reaction by regulating various process parameters (such as the alumina feed rate, bath composition, voltage, current, etc.). Also proper maintenance practices are used to maintain the physical condition of the hood shields.

Potlines 1-4 are predominantly a source of PM, SO₂, and TF emissions. The primary emissions pass through one of two identical emission control trains that consist of a multiclones, electrostatic precipitators (ESPs), and wet scrubbers in series. The multiclones serve to knock-out the larger particulate matter captured and the ESPs provide further PM reduction. Additional control of PM, TF and SO₂ is provided in the lime injected wet scrubbers downstream of the ESPs. The layout and ducting arrangement of the overall control system for Potlines 1-4 is shown in Figure 2-1 for illustrative purposes. Potlines 1 and 2 are vented through the East multiclones and ESPs, while Potlines 3 and 4 are vented through the West multiclones and ESPs. The system is not ducted in such a way that the East system can also control emissions from the West system or vice versa. However, once the exhaust gas passes through the ESPs on each side, it is ducted to a common header that distributes the flow to all scrubber towers. The individual components of the control train are further described below.

Figure 2-1 Configuration of Control System Components for Potlines 1-4



- **Multiclones:** The multiclones in place are the original equipment installed in 1969. There is one multiclone per potline (4 total with 2 on the East side serving Potlines 1 and 2, and 2 on the West side serving Potlines 3 and 4).
- **ESPs:** There are eight 3-field ESPs (4 on the East side and 4 on the West side) that were installed in 1978. When all four potlines are in operation, 6 ESPs are used (3 per side). When two potlines are in operation, 4 ESPs are used (2 per side).
- **Induced Draft Fans:** There are 8 induced draft fans (4 on the East side and 4 on the West side) situated between the ESPs and scrubbers. When all four potlines are in operation 6 fans are used (3 per side) with the remaining one on each side serving as a spare. When two potlines are in operation, 4 fans are used (2 per side). After the fans, the exhaust gas streams on each side combine into a common header that is distributed to the scrubbers.
- **Scrubbers:** There are 12 scrubbers (6 on the East Side and 6 on the West side) that were installed in 1969 to control fluorides. Mist eliminator screens are used as the packing media. In the mid-1980's, the use of lime slurry instead of water as the scrubbing fluid was initiated to improve fluoride control and also provide some SO₂ control. When all four potlines are in operation, all 12 scrubbers (6 per side) are in use except during weekly cleaning events when one scrubber at a time each day is put in bypass mode for approximately 30 minutes. When only two potlines are in operation, only 8 scrubbers (4 per side) are in operation.

2.2 CAM APPLICABILITY AND DESIGNATION

The Wet Scrubber System (43-2001) serving Potlines 1-4 is a control device for total fluorides (TF) (gaseous and particulate), PM/PM₁₀, and SO₂. Potlines 1-4 are currently subject to TF emission limit and work practice standards under 40 CFR 63.843(a). These potlines are of the type identified in 40 CFR 63, Subpart LL as CWPB3 (Center-Worked Pre-Bake, Type 3). Based on changes promulgated to 40 CFR 63, Subpart LL on October 15, 2015, new emission limits for POM and PM took effect in October 2017 and a new emission limit for COS took effect in October 2016. Pursuant to 40 CFR 64.2 (b)(1)(i), because Potlines 1-4 are subject to TF, POM, PM, and COS emission standards proposed and promulgated by EPA after November 15, 1990 under Section 111 or 112 of the Clean Air Act, they are exempt from the requirements of the CAM rule for these pollutants and standards.

Potlines 1-4 are also subject to PM/PM₁₀, SO₂, CO, VOC, NO_x, and fluoride emission limits established pursuant to 401 KAR 51:017. The Wet Scrubber System is used to achieve compliance with the PM/PM₁₀ and SO₂ limits, but it is not a control device for CO, VOC, or NO_x. Thus, in absence of a control device needed to comply with the BACT limit established under 401 KAR 51:017, CAM does not apply for CO, VOC, or NO_x. The fluoride BACT emission limit (lb/hr) is equivalent to the 40 CFR 63, Subpart LL emission limit (2.5 lb/ton), which as noted above, is exempt from CAM. The requirements for fluoride under 40 CFR 63, Subpart LL satisfy the requirements of CAM for the 401 KAR 51:017 emission limit. Therefore, a CAM plan has only been prepared for the PM/PM₁₀ and SO₂ BACT emission limits.

The post-controlled emissions for the entire Wet Scrubber System are greater than 100 tpy for both PM and SO₂ and thus Potlines 1-4 are large PSEUs with respect to these pollutants. A CAM Plan for each pollutant was previously developed as part of prior Title V permit actions. An updated version of these CAM Plans is provided in the following sections. This updated CAM Plan provides two sets of indicator ranges for the monitoring parameters selected— one for when all four potlines are in operation and one for when only two potlines are in operation.

2.3 PM/PM₁₀ CAM PLAN

2.3.1 Applicable Regulations, PM/PM₁₀ Emission Rates and Current Monitoring

Potlines 1-4 (EP 84b; Process ID 1-4)	
Pollutant:	PM/PM ₁₀
Regulation:	401 KAR 51:017 (BACT)
Emission Limit:	PM from the Potlines 1-4 stack is limited to 138.33 lb/hr (monthly average) PM ₁₀ from the Potlines 1-4 stack is limited to 80.234 lb/hr (monthly average)
Pre-Controlled Emissions:	PM: 7,935 tpy / PM ₁₀ : 5,810.1 tpy (based on the controlled emission rate and an estimated 94.57% control efficiency)
Controlled Emissions:	<p><u>4 Potlines in Operation:</u> PM: 98.37 lb/hr, 430.9 tpy (3.45 lb/ton) PM₁₀: 72.03 lb/hr; 315.5 tpy (2.52 lb/ton)</p> <p>Post-controlled PM and PM₁₀ emissions are measured in annual stack tests. The values listed above are those from the December 2014 stack test when all four potlines were in operation. The lb/ton emission factors derived from this test are multiplied by the maximum capacity of Potlines 1-4 to define the controlled emissions value listed above.</p> <p><u>2 Potlines in Operation (Potlines 2 and 4):</u> PM: 49.64 lb/hr, 217.4 tpy (3.48 lb/ton) PM₁₀: 29.32 lb/hr, 128.4 tpy (2.06 lb/ton)</p> <p>During the annual performance test conducted in December 2015, only Potlines 2 and 4 were in operation. The lb/ton emission factors from this test are multiplied by the maximum capacity of Potlines 2 and 4 to define the controlled emissions value listed above for a 2-potline operation.</p>
CAM Designation:	Large PSEU for PM/PM ₁₀
Current PM/PM ₁₀ Monitoring Requirements:	<ul style="list-style-type: none"> • Conduct PM stack test annually. • Perform a qualitative visual observation of emissions from the stack on a daily basis and maintain a log of the observation. • Perform visual opacity readings on the stack using Reference Method 9 on a quarterly basis. • Operate, calibrate, and maintain a continuous monitoring system for the control equipment pursuant to the approved 40 CFR 63, Subpart LL parametric monitoring plan. • 12-month rolling totals of aluminum production.

2.3.2 Monitoring Methods for PM/PM₁₀

The proposed monitoring methods that provide on-going assurance of compliance with the permitted PM/PM₁₀ limits and monitoring performance criteria for the indicators selected are detailed in Table 2-1. In accordance with 40 CFR 64.4(b), the rationale and justification for the monitoring method and indicator ranges are provided in the subsequent sections.

Table 2-1. PM/PM₁₀ Monitoring Methods for Potlines 1-4

General Criteria		
Indicator	Fan Motor Amperage; Number of Fans Operating	ESP Secondary Current and Voltage; Number of ESPs in Operation
Measurement Approach	The amperage of the motors for the fans serving the wet scrubber system is monitored by 1771-IFE Analog Input Cards. The system also tracks the number of fans that are in operation. The exhaust gas flowrate is a function of the fan amperage and number of fans in operation.	The secondary current and voltage of each ESP field are measured using an ammeter and voltmeter, respectively.
Indicator Range	<p>With 4 Potlines in Operation: 6 fans operating (3 per side); 170 – 210 Amps each</p> <p>With 2 Potlines in Operation: 4 fans operating (2 per side); 170 – 210 Amps each</p> <p>An excursion is defined as a 2-hour average fan amperage outside the indicator range or a deviation in the number of fans operating. An excursion will trigger an investigation of the occurrence, corrective action, and a reporting requirement.</p>	<p>With 4 Potlines in Operation: 6 ESPs in Operation (3 per side) 50-180 mA secondary current 18-29 kV secondary voltage</p> <p>With 2 Potlines in Operation: 4 ESP Sections in Operation (2 per side) 50-180 mA secondary current 18-29 kV secondary voltage</p> <p>An excursion is defined as a 2-hour average secondary current or voltage outside the indicator range, or a deviation in the number of ESP sections in operation. An excursion will trigger an investigation of the occurrence, corrective action, and a reporting requirement.</p>
Means of Identifying Excursion	The continuous monitoring system provides an alarm notification to operators if the fan amperage reading falls below the minimum of the indicator range or a fan shuts down.	The continuous monitoring system provides an alarm notification to operators if the secondary current or voltage fall outside the indicator range.
Corrective Actions	In response to an excursion, appropriate personnel will troubleshoot the control system and conduct repairs or maintenance as deemed necessary. Corrective actions will be documented in the plant's maintenance tracking system.	In response to an excursion, appropriate personnel will troubleshoot the ESPs and conduct repairs or maintenance as deemed necessary. Corrective actions will be documented in the plant's maintenance tracking system.

Performance Criteria	<i>Fan Motor Amperage; Number of Fans Operating</i>	<i>ESP Secondary Current and Voltage; Number of ESPs in Operation</i>
Data Representativeness	The fan amperage and number of fans operating is tied to the total exhaust flowrate, which is an indicator of the total draw capacity of the system. The fan amperage meters have a minimum accuracy of $\pm 0.5\%$.	The secondary current and voltage are measured using the instrumentation the manufacturer provided with the ESPs.
Verification of Operational Status	The operational status of the fans and amperage values are displayed on the operator's control screen. The system continuously monitors the fan amperage and alarms if it falls below the minimum of the indicator range or a fan shuts down.	The operational status of the secondary current and voltage meters are verified by presence of a positive reading. When the ESPs are not in operation, confirmation is made that the meters read zero.
QA/QC Practices and Criteria	The fan amperage monitoring system is calibrated annually.	The secondary current and voltage meters are calibrated annually.
Monitoring Frequency	Continuously The exhaust fan amperage and fan operational status is monitored continuously and at least one data point is electronically saved every 15 minutes when the system is in operation.	Continuously The secondary current and voltage are monitored continuously and at least one data point is electronically saved every 15 minutes when the system is in operation.
Data Collection Procedure	15-minute instantaneous readings are recorded. The programmable logic controller (PLC) then calculates and records the rolling 2-hour average value for fan amperage.	15-minute instantaneous readings are recorded. The programmable logic controller (PLC) then calculates and records the rolling 2-hour average value.
Averaging Period	2 hours	2 hours
QIP Threshold	Century will develop a quality improvement plan (QIP) if there are more than 883 excursions of the exhaust gas flowrate indicator (fan amps) in a semi-annual reporting period for any fan. This corresponds to an excursion frequency of less than 5% of total data values collected in a semiannual period (184 days/period x 24 hr/day x 4 readings/hour).	Century will develop a quality improvement plan (QIP) if there are more than 883 excursions of the secondary current and voltage indicator in a semi-annual reporting period for any ESP Section. This corresponds to an excursion frequency of less than 5% of total data values collected in a semiannual period (184 days/period x 24 hr/day x 4 readings/hour).
Recordkeeping	<ul style="list-style-type: none"> Electronic archives of fan amperage 2-hr average readings and fan operational status. Causes and corrective actions taken associated with any excursions, noted in the maintenance log. 	<ul style="list-style-type: none"> Electronic archives of secondary current and voltage 2-hr average readings. Causes and corrective actions taken associated with any excursions, noted in the maintenance log.
Reporting	Excursions will be summarized in Title V semiannual monitoring reports.	Excursions will be summarized in Title V semiannual monitoring reports.

2.3.3 Monitoring Method Justification– Scrubber Fan Amperage and Number of Fans

Rationale for Selection of Performance Indicator

The exhaust flowrate from the wet scrubber is a measure of the total volume of exhaust gas drawn from each of the potlines. Maintaining the exhaust flowrate at a sufficiently high value, as indicated by a fan amperage value, provides evidence that effective capture is occurring and that the control system is operating normally.

Monitoring exhaust flowrate for wet scrubbers is required by 40 CFR 63.848(f)(3) and thus, pursuant to 40 CFR 64.4(b), this method is presumptively acceptable for purposes of CAM.

The original design of the scrubber did not include a device to measure gas flow directly. Measuring air flow into and exiting the individual scrubber modules is not feasible within the constraints imposed by EPA Method 2 given configuration of the inlet and exit ductwork. Further because the scrubber is a wet system, any device installed in the stack would be routinely fouled by the lime slurry water and entrained particulate matter and thus could not deliver accurate results consistently. Therefore, as previously established and approved of in the 40 CFR 63, Subpart LL Monitoring Plan, Century monitors the scrubber fan amperages as a surrogate for gas flow.

Rationale for Selection of Indicator Range

Number of Fans Operating

As noted in Section 2.1, there are a total of 8 induced draft fans on the control system, 4 of which are on each side (See Figure 2-1). To ensure the proper amount of draw at each individual pot cell, when all four potlines are in operation, at least 6 of the 8 fans must be operating within the indicator range. The extra fan on each side serves as a spare that can be started up in the event of a malfunction of one of the other fans. The extra fan can also be engaged when it is necessary to take an operating fan offline for maintenance, thereby allowing continuous operation. When only two potlines are in operation, the number of fans needed to provide adequate draw capacity is proportionally reduced. In this operating mode, at least 4 of the 8 fans are kept in operation within the indicator range. An excursion is triggered any time the number of fans operating is less than the indicator range corresponding to the operating mode of the plant.

Fan Amperage

The 8 induced draft fans for the wet scrubber system have been operating for decades. Over their operating life, Century has performed numerous performance tests and has gained an understanding of how the fan amps are linked to gas flow through the wet scrubber system. For example, when the air is colder and more dense, the fan amps increase when pulling the same volume of air as they would during the summer months. The relationship between fan amps and gas flow rate is valid and reliable.

The amperage of the fan motors is monitored by 1771-IFE Analog Input Cards and instantaneously recorded to a PLC every 15 minutes. The PLC calculates and records the 2-hr average of the instantaneous readings taken the previous 2 hours and records that reading to the PLC. The instantaneous and 2-hour average is displayed on the operators control screen. The indicator range specified is 170 to 210 amps, corresponding to the target operating range developed over years of operation and review of data over several years to account for seasonal variations. A review of fan amperage data in the most recent two quarters (January to June 2016) validates this normal operating range. During the period, the fan amperage for the four fans in operation ranged from 170 to 210 amps for 99.1% of the 15-minute data recording periods. There were no known excess emissions for PM/PM₁₀ during this period and the exhaust flow system was operating normally.

The annual performance test performed in December 2014 for TF and PM/PM₁₀, which was the most recent test completed when all 4 potlines were in operation, confirmed that maintaining the fan amperage within the identified range corresponds to a flowrate that provides adequate draw on the potlines to minimize secondary emissions and attain compliance with the PM/PM₁₀ emission standards. By the same rationale, maintaining the fan amperage and number of fans operational within the indicator range provides evidence that the control system is properly functioning and thereby achieving the required level of control for PM/PM₁₀. PM and PM₁₀ emissions were measured during three approximately 24-hour test runs. Over the course of the testing period, the fan amperage in the 6 fans operated (Fans #2, #3, #4, #5, #6 and #7) averaged **184 amps** and ranged from a low of 176 amps to a high of 191 amps. PM and PM₁₀ emissions measured during this test were well below the limit.

When the plant is only operating two potlines, although the number of fans in operation is reduced, the same fan amperage range is valid and used for those in operation. The annual performance test performed in December 2015 for PM/PM₁₀, which is the most recent test completed when two potlines were operation, validated this approach. PM and PM₁₀ emissions were measured during three approximately 24-hour test runs. Over the course of the testing period, the fan amperage in the 4 fans operated (Fans #2, #4, #7 and #8) averaged **175 amps** and ranged from a low of 171 amps to a high of 179 amps. The fan amp range specified is therefore a reliable, valid, and accurate indicator of gas flow and will ensure continuous compliance by maintaining adequate draft on the reduction cells without over loading the multiclones, ESPs, and wet scrubbers.

2.3.4 Monitoring Method Justification– **ESP Secondary Current and Voltage**

Rationale for Selection of Performance Indicator

In an ESP, electric fields are established by applying a direct-current voltage across a pair of electrodes—a discharge electrode and a collection electrode. Particulate matter suspended in the gas stream is electrically charged by passing through the electric field around each discharge electrode (the negatively charged electrode). The negatively charged particles then migrate toward the positively charged collection electrodes. The particulate matter is separated from the gas stream by retention on the collection electrode. Particulate is removed from the collection plates by shaking or rapping the plates.

The secondary voltage drops when a malfunction, such as grounded electrodes, occurs in the ESP. When the secondary voltage drops, less particulate is charged and collected. Also, the secondary voltage can remain high but fail to perform its function if the collection plates are not cleaned, or rapped, appropriately. If the collection plates are not cleaned, the current drops. Thus, monitoring both the secondary voltage and current and maintaining them within a specified range provides a reasonable assurance that the ESP is functioning properly. Monitoring these parameters for ESPs is required by 40 CFR 63.848(f)(4) and thus, pursuant to 40 CFR 64.4(b), this method is presumptively acceptable for purposes of CAM.

Rationale for Selection of Indicator Range

The indicator range was selected based upon the 2-hour average secondary current and voltage readings recorded during the most recent two operating quarters (January to June 2016), during which time the ESPs were functioning normally. A histogram of all 2-hour secondary current readings for active ESP fields shows a normal-type distribution with a tail to the high end. Based on a review of this data set, an indicator range of 50 to 180 mA is proposed for secondary current. Approximately 99.4% of the 2-hr average current readings fell within this band. For voltage, an indicator range of 18 to 29 kV is proposed. Treating all voltage readings above 15 kV as valid, approximately 99.7% of 2-hr average voltage readings fell within this band.

During the December 2014 performance test, when all 4 potlines were in operation, the measured PM emissions, scaled up to maximum capacity, were roughly 71% of the allowable limit. During the period of this test, the secondary current 2-hour average readings averaged **93 mA** and ranged from 20 to 216 mA. The values outside of the proposed 50 to 180 mA indicator range were outliers. Approximately 98.9% of the 2-hour average readings were within the proposed indicator range during the test period. The proposed range, relative to the average reading during the test period, equates to the average minus 1.9 standard deviations on the low end to the average plus 2.5 standard deviations on the high end. Voltage readings during the December 2014 averaged **21.6 kV** and ranged from 5.6 to 29.4 kV. As with the secondary current readings, the values outside of the proposed 18 to 29 kV mA indicator range were outliers. Approximately 97.0% of the 2-hour average readings were within the proposed indicator range. The proposed range for voltage, relative to the average reading during the test period, equates to the average minus 1.6 standard deviations on the low end to the average plus 3.3 standard deviations on the high end. PM and PM₁₀ emissions measured during this test were well below the standard.

During the December 2015 performance test, when only Potlines 2 and 4 were in operation, the measured PM emissions, scaled up to maximum capacity, were roughly 36% of the allowable limit. During the period of this test, the secondary current 2-hour average readings averaged **91 mA** and ranged from 9 to 175 mA. The values outside of the proposed 50 to 180 mA indicator range were outliers. Approximately 94.6% of the 2-hour average readings were within the proposed indicator range during the test period. Voltage readings during the December 2015 averaged **21.8 kV** and ranged from 3.0 to 26.5 kV. As with the secondary current readings, the values outside of the proposed 18 to 29 kV mA indicator range were outliers. Approximately 92.7% of the 2-hour average readings were within the proposed indicator range. PM and PM₁₀ emissions measured were again well below the standard during this test. Therefore, maintaining the secondary current and voltage within the indicator range provides evidence that the ESPs are properly functioning and thereby achieving the required level of control for PM/PM₁₀.

2.4 SO₂ CAM PLAN

2.4.1 Applicable Regulations, SO₂ Emission Rates and Current Monitoring

Potlines 1-4 (EP 84b; Process ID 1-4)	
Pollutant:	SO ₂
Regulation:	401 KAR 51:017 (BACT)
Emission Limit:	SO ₂ from the Potlines 1-4 stack and roof vents combined is limited to 898.97 lb/hr (monthly average)
Pre-Controlled Emissions:	2,595 tpy (based on estimated 50% control efficiency)
Controlled Emissions:	<p>296 lb/hr; 1,297 tpy; 10.38 lb/ton</p> <p>Post-controlled SO₂ emissions were last quantified in four quarterly stack tests conducted in May 2011, September 2011, November 2011, and January 2012. The emissions measured during these tests (lb/hr) were divided by the production rate occurring during the tests to yield lb/ton emission factors. The maximum controlled emission rate value listed above is the <u>highest</u> of the lb/ton factors from these four tests multiplied by the maximum capacity of Potlines 1-4.</p> <p>During the January 2012 test, SO₂ emissions from the Potline 4 Downcomer were measured. The SO₂ emission factor derived from this test for the potline roof vents was 1.35 lb/ton. Thus, Potline 1-4 stack emissions comprise roughly 88% of the total emissions (10.38 lb/ton + 1.35 lb/ton). Roughly 88%, or 795 lb/hr, of the SO₂ BACT limit can thus be apportioned to the Potline 1-4 stack. The maximum controlled emissions, based on the highest of the last four stack tests (296 lb/hr), is only 37% of the apportioned BACT limit (i.e., 296 / 795). This shows that Potlines 1-4 operate under a very large compliance margin with respect to the applicable SO₂ limit and only limited compliance assurance monitoring is warranted.</p>
CAM Designation:	Large PSEU for SO ₂
Current SO ₂ Monitoring Requirements:	<ul style="list-style-type: none"> Conduct SO₂ stack tests quarterly during the first year of Title V permit and then once during the next four years of the permit. 12-month rolling totals of aluminum production

2.4.2 Monitoring Methods for SO₂

The proposed monitoring methods that provide on-going assurance of compliance with the permitted SO₂ limit and monitoring performance criteria for the indicators selected are detailed in Table 2-2. In accordance with 40 CFR 64.4(b), the rationale and justification for the monitoring method and indicator ranges are provided in the subsequent sections.

Table 2-2. SO₂ Monitoring Methods for Potlines 1-4

General Criteria		
Indicator	Fan Motor Amperage; Number of Fans Operating	Water Flowrate; Number of Scrubbers Operating
Measurement Approach	The amperage of the motors for the fans serving the wet scrubber system is monitored by 1771-IFE Analog Input Cards. The system also tracks the number of fans that are in operation. The exhaust gas flowrate is a function of the fan amperage and number of fans in operation.	The water flowrate into each scrubber is measured via a flow meter.
Indicator Range	<p>With 4 Potlines in Operation: 6 fans operating (3 per side); 170 – 210 Amps each</p> <p>With 2 Potlines in Operation: 4 fans operating (2 per side); 170 – 210 Amps each</p> <p>An excursion is defined as a 2-hour average fan amperage outside the indicator range or a deviation in the number of fans operating. An excursion will trigger an investigation of the occurrence, corrective action, and a reporting requirement.</p>	<p>With 4 Potlines in Operation: 1,500-3,400 gpm per scrubber 12 scrubbers active (6 per side) except during periods when one scrubber is taken offline for cleaning. Each scrubber is taken offline for approximately 30 minutes each week for required cleaning.</p> <p>With 2 Potlines in Operation: 1,500-3,400 gpm per scrubber 8 scrubbers active (4 per side)</p> <p>An excursion is defined if the number of scrubbers active is less than the minimum or if there is a 2-hour average water flowrate outside the indicator range. (A scrubber is considered active if the damper directing flow from the main plenum to that scrubber is open.) An excursion will trigger an investigation of the occurrence, corrective action, and a reporting requirement.</p>
Means of Identifying Excursion	The continuous monitoring system provides an alarm notification to operators if the fan amperage reading falls below the minimum of the indicator range or a fan shuts down.	The continuous monitoring system provides an alarm notification to operators if the water flowrate reading falls outside the indicator range.
Corrective Actions	In response to an excursion, appropriate personnel will troubleshoot the control system and conduct repairs or maintenance as deemed necessary. Corrective actions will be documented in the plant's maintenance tracking system.	In response to an excursion, appropriate personnel will troubleshoot the wet scrubber system and conduct repairs or maintenance as deemed necessary. Corrective actions will be documented in the plant's maintenance tracking system.

Performance Criteria	<i>Fan Motor Amperage; Number of Fans Operating</i>	<i>Water Flow Rate; Number of Scrubber Modules Operating</i>
Data Representativeness	The fan amperage and number of fans operating is tied to the total exhaust flowrate, which is an indicator of the total draw capacity of the system. The fan amperage meters have a minimum accuracy of $\pm 0.5\%$.	The water flowmeters are installed at the header of each scrubber module, which provides an accurate reading of the water flowrate to the system. The water flowmeter has a minimum accuracy of $\pm 1.0\%$.
Verification of Operational Status	The operational status of the fans and amperage values are displayed on the operator's control screen. The system continuously monitors the fan amperage and alarms if it falls below the minimum of the indicator range or a fan shuts down.	The system will alert the operator if the water pumps shut down.
QA/QC Practices and Criteria	The fan amperage monitoring system is calibrated annually.	The water flowmeters are calibrated annually.
Monitoring Frequency	Continuously The exhaust fan amperage and fan operational status is monitored continuously and at least one data point is electronically saved every 15 minutes when the system is in operation.	Continuously The water flowrate is monitored continuously and at least one data point is electronically saved every 15 minutes when the system is in operation.
Data Collection Procedure	15-minute instantaneous readings are recorded. The programmable logic controller (PLC) then calculates and records the rolling 2-hour average value.	15-minute instantaneous readings are recorded. The programmable logic controller (PLC) then calculates and records the rolling 2-hour average value.
Averaging Period	2 hours	2 hours
QIP Threshold	Century will develop a quality improvement plan (QIP) if there are more than 883 excursions of the exhaust gas flowrate indicator (fan amps) in a semi-annual reporting period for any fan. This corresponds to an excursion frequency of less than 5% of total data values collected in a semiannual period (184 days/period x 24 hr/day x 4 readings/hour).	Century will develop a quality improvement plan (QIP) if there are more than 883 excursions of the water flowrate indicator in a semi-annual reporting period for any module. This corresponds to an excursion frequency of less than 5% of total data values collected in a semiannual period (184 days/period x 24 hr/day x 4 readings/hour).
Recordkeeping	<ul style="list-style-type: none"> Electronic archives of fan amperage 2-hr average readings and fan operational status. Causes and corrective actions taken associated with any excursions, noted in the maintenance log. 	<ul style="list-style-type: none"> Electronic archives of water flowrate 2-hr average readings and fan operational status. Causes and corrective actions taken associated with any excursions, noted in the maintenance log.
Reporting	Excursions will be summarized in Title V semiannual monitoring reports.	Excursions will be summarized in Title V semiannual monitoring reports.

2.4.3 Monitoring Method Justification– Scrubber Fan Amperage and Number of Fans

Rationale for Selection of Performance Indicator

The exhaust flowrate from the wet scrubber is a measure of the total volume of exhaust gas drawn from each of the potlines. Maintaining the exhaust flowrate at a sufficiently high value, as indicated by a fan amperage value, provides evidence that effective capture is occurring and that the control system is operating normally. Monitoring exhaust flowrate for wet scrubbers is required by 40 CFR 63.848(f)(3) and thus, pursuant to 40 CFR 64.4(b), this method is presumptively acceptable for purposes of CAM. For the same rationale explained in Section 2.3.3, Century monitors the scrubber fan amperages as a surrogate for gas flow.

Rationale for Selection of Indicator Range

As already presented in Section 2.3.3, maintaining the fan amperage and number of fans operational within the indicator range specified provides evidence that the wet scrubber system is properly functioning and thereby achieving the required level of control for SO₂.

2.4.4 Monitoring Method Justification– Water Flowrate

Rationale for Selection of Performance Indicator

Water flow to the scrubbers is provided by the operation of up to three 10,000 gpm capacity Allen-Sherman Hoff water pumps. The pumps push water into the main distribution header, which then supplies flow to each individual scrubber. Although the flowrate to each individual scrubber cannot be controlled, an ultrasonic flowmeter at the header to each scrubber (on the vertical piping just prior to entering the scrubber) is used to monitor the individual scrubber module flowrates. Although not exactly uniform, the flowrates are reasonably consistent to individual scrubber modules and the differences between scrubber modules are low.

Maintaining the water flowrate through the scrubber modules at a sufficiently high value provides evidence that the wet scrubber system is operating normally. Monitoring scrubber water flowrate for wet scrubbers is required by 40 CFR 63.848(f)(3) and thus, pursuant to 40 CFR 64.4(b), this method is presumptively acceptable for purposes of CAM.

Rationale for Selection of Indicator Range

The proposed indicator range for the water flowrate values for each scrubber is **1,500 to 3,400 gpm**. A water flow reading is recorded to the PLC once every 15 minutes. The basis for excursions will be the 2-hr average of these 15 minute instantaneous readings for each of the flow meters.

The 1,500 gpm minimum water flowrate threshold was originally established in the 1970's by the scrubber manufacturer based on achieving a sufficient water to gas flow ratio. If the 2-hour average water flowrate to an individual scrubber falls below 1,500 gpm, this is evidence of a problem with the distribution system, plugging in the scrubber, or other problem inside the scrubbers that would require inspection and corrective action. Any flowrate above 1,500 gpm is sufficient for the scrubber to perform properly.

While from a SO₂ control efficiency standpoint, higher water flowrates would not be an issue, above very high levels, the scrubber packing material or other components of the system may be adversely affected. Therefore, Century has historically set an upper threshold of 3,400 gpm as a trigger to troubleshoot and investigate potential problems. This upper bound is being proposed for the indicator range.

The water flow indicator range was validated during the performance test conducted for SO₂ which occurred on January 25, 2012. As indicated in Section 2.4.1, the tested emissions were less than 33% of the limit for SO₂ and thus there is a significant compliance margin. During the period of the three test runs, 11 of the 12 scrubber modules were in operation. The water flowrate to each scrubber averaged 2,600 gpm and ranged from a low of 2,239 gpm to a high of 3,239 gpm, within the proposed indicator range. This range was further validated by reviewing parametric monitoring data during the most recent two quarters (January to June 2016). During this period, the water flowrate values ranged from 100 to 3,400 gpm, but were within the indicator range 99.9% of the time. During this period, the scrubbers were operating and functioning normal. Therefore, maintaining the water flowrate within the indicator range provides evidence that the wet scrubber system is properly functioning and is thereby achieving the required level of control for SO₂.

3.1 EMISSION UNITS AND CONTROL DEVICE DESCRIPTION

Emission Unit Name:	Potline 5
Emission Group:	42 (Potlines)
Century EDN:	4250
KyEIS Equipment ID:	EQPT0000000127
KyEIS Source ID:	89
KyEIS Process ID:	1
Control Device:	Dry Alumina Scrubber (48-0063)

Potline 5 was constructed and began operation in April 1999. It consists of 112 individual pots to enable electrolysis for the production of molten aluminum. The aluminum reduction process in Potline 5 is essentially identical to the process in Potlines 1-4, with a few minor differences.

The Potline 5 pots are predominantly a source of PM, SO₂, and TF emissions. The exhaust gases collected from the potline pass through a dry alumina scrubber (48-0063) consisting of six reactors and corresponding baghouses. Each reactor-baghouse module operates in parallel with the others and the combined gas through the system is approximately 550,000 acfm. Fluorides are collected on the alumina. The alumina and PM is collected in the baghouses. The gas flow to the control system is ensured through the operation of 2 of 3 induced draft fans, each of which has a capacity equivalent to 50% of the total flow. The non-operating fan is kept available in stand-by mode.

3.2 CAM APPLICABILITY AND DESIGNATION

Potline 5, which is of the type identified in 40 CFR 63, Subpart LL as CWPB1, is subject to TF emission limit and work practice standards under 40 CFR §63.844(a). Based on changes promulgated to 40 CFR 63, Subpart LL on October 15, 2015, new emission limits for POM and PM took effect in October 2017 and a new emission limit for COS took effect in October 2016. The dry alumina scrubber serving Potline 5 is a control device for fluorides (gaseous and particulate) and PM. Pursuant to 40 CFR 64.2 (b)(1)(i), because Potline 5 is subject to TF and PM emission standards proposed and promulgated by EPA after November 15, 1990 under Section 111 or 112 of the Clean Air Act, it is exempt from the requirements of the CAM rule for these pollutants and standards.

Potline 5 is also subject to PM/PM₁₀, SO₂, CO, VOC, NO_x, and fluoride emission limits established pursuant to 401 KAR 51:017. Emissions of SO₂ from Potline 5 are addressed by limiting the sulfur content in the raw materials, rather than by using a control device. The dry alumina scrubber is also not a control device for CO, VOC, or NO_x. In absence of a control device needed to comply with the BACT limits established under 401 KAR 51:017, CAM does not apply for SO₂, CO, VOC, or NO_x. The fluoride mass emission rate BACT limit is exactly equivalent to the 40 CFR 63, Subpart LL limit (1.2 lb/ton), which as noted above is exempt from CAM. The requirements for fluoride under 40 CFR 63, Subpart LL satisfy the requirements of CAM for the 401 KAR 51:017 emission limit. Therefore, a CAM plan has only been prepared for the PM/PM₁₀ BACT emission limit. With respect to PM/PM₁₀, the post-controlled emissions for the dry alumina scrubber are less than 100 tpy and thus Potline 5 is a small PSEU. A CAM Plan for PM was previously developed as part of prior Title V permit actions. An updated version of this CAM Plan is provided in the following sections.

3.3 PM/PM₁₀ CAM PLAN

3.3.1 Applicable Regulations, PM/PM₁₀ Emission Rates and Current Monitoring

Potline 5 (EP 89; Process ID 1)	
Pollutant:	PM/PM ₁₀
Regulation:	401 KAR 51:017 (BACT)
Emission Limit:	PM from the Potline 5 stack is limited to 13.875 lb/hr (monthly average) PM ₁₀ from the Potline 5 stack is limited to 8.048 lb/hr (monthly average)
Pre-Controlled Emissions:	PM: 298 tpy PM ₁₀ : 224 tpy (based on estimated 98% control efficiency)
Controlled Emissions:	PM: 1.36 lb/hr, 5.96 tpy PM ₁₀ : 1.02 lb/hr; 4.49 tpy Post-controlled PM and PM ₁₀ emissions are measured in annual stack tests. The values listed above are those from the October 2014 stack test, which is the most recent test performed and is also the data used in the August 15, 2015 Title V permit renewal application. The lb/ton emission factors derived from this test are multiplied by the maximum capacity of Potline 5 to define the controlled emissions value listed above.
CAM Designation:	Small PSEU for PM/PM ₁₀
Current PM/PM ₁₀ Monitoring Requirements:	<ul style="list-style-type: none"> • Conduct PM and PM₁₀ stack test annually. • Perform a qualitative visual observation of emissions from the stack on a daily basis and maintain a log of the observation. • Perform visual opacity readings on the stack using Reference Method 9 on a quarterly basis. • Continuously monitor the flow rate and pressure drop across the dry alumina scrubber • Operate, calibrate, and maintain a continuous monitoring system for the control equipment pursuant to the approved 40 CFR 63, Subpart LL parametric monitoring plan. • 12-month rolling totals of aluminum production

3.3.2 Monitoring Methods for PM/PM₁₀

The proposed monitoring methods that provide on-going assurance of compliance with the permitted PM/PM₁₀ limits and monitoring performance criteria for the indicators selected are detailed in Table 3-1. In accordance with 40 CFR 64.4(b), the rationale and justification for the monitoring method and indicator ranges are provided in the subsequent sections.

Table 3-1. PM/PM₁₀ Monitoring Methods for Potline 5

General Criteria		
Indicator	Dry Alumina Scrubber Baghouse Differential Pressure	Visible emissions from the Dry Alumina Scrubber stack.
Measurement Approach	The differential pressure across each dry alumina baghouse module is measured by Rosemount Model 3051CD2-AO2A1AS5B4E5M5 transmitters connected to each module on the dirty side and to the discharge plenum on the clean side.	A qualified observer will conduct a visual observation twice daily (at least 4 hours apart) when weather conditions allow using Method 22.
Indicator Range	7.5 to 9 inches water An excursion is defined as a 2-hour average differential pressure reading outside the indicator range. An excursion will trigger an investigation of the occurrence, corrective action, and a reporting requirement.	Visible emissions seen during a visual observation.
Means of Identifying Excursion	The continuous monitoring system provides an alarm notification to operators if the differential pressure reading falls outside the indicator range.	Direct viewing of the stack by a qualified observer.
Corrective Actions	In response to an excursion, appropriate personnel will troubleshoot the dry alumina scrubber baghouse and conduct repairs or maintenance as deemed necessary. Corrective actions will be documented in the plant's maintenance tracking system.	In response to an excursion (i.e., presence of visible emissions), personnel will troubleshoot the baghouse system and conduct repairs or maintenance as deemed necessary. Corrective action will be initiated within 1 hour of visible emission inspections that indicate abnormal operations. Corrective actions will be documented in the plant's maintenance tracking system.
Performance Criteria		
Data Representativeness	The pressure transmitters have a minimum accuracy of $\pm 0.075\%$.	It is assumed that the baghouse is functioning properly if there are no visible emissions from the stack.
Verification of Operational Status	The differential pressure reading is displayed on the operator's control screen. The system continuously monitors the pressure and alarms if it falls outside the indicator range.	Observer will verify that Potline 5 and the dry alumina scrubber system are operational before conducting the visual evaluation of the stack.
QA/QC Practices and Criteria	Preventative maintenance inspections are conducted monthly that include cleaning and checking of the monitoring instruments.	The baghouse modules will be maintained and operated in accordance with good air pollution control practices. Staff assigned to conduct visual observations will be provided training on Method 22 procedures to follow.

Monitoring Frequency	Continuously The differential pressure across each of the 6 baghouse modules is monitored continuously and at least one data point is electronically saved every 15 minutes when the system is in operation.	Twice Daily Visual Observations will be conducted twice daily (at least 4 hours apart).
Data Collection Procedure	15-minute instantaneous readings are recorded. The programmable logic controller (PLC) then calculates and records the rolling 2-hour average value.	Trained staff will conduct a qualitative visual observation of the opacity of emissions from the Potline 5 dry alumina scrubber system stack following Method 22 and maintain a log of the observations. The log shall note whether any air emissions were visible from the stack.
Averaging Period	2 hours	Instantaneous determination from visual observation.
QIP Threshold	Century will develop a quality improvement plan (QIP) if there are more than 883 excursions of the differential pressure indicator in a semi-annual reporting period. This corresponds to an excursion frequency of less than 5% of total data values collected in a semiannual period (184 days/period x 24 hr/day x 4 readings/hour).	Century will develop a quality improvement plan (QIP) if there are more than 18 excursions (i.e., visible emissions recorded) during a semi-annual reporting period. This would be the equivalent of an excursion taking place for roughly 5% of the observation events (184 days x 2 readings/day).
Recordkeeping	<ul style="list-style-type: none"> Electronic archives of differential pressure 2-hr average readings. Causes and corrective actions taken associated with any excursions, noted in the maintenance log. 	<ul style="list-style-type: none"> Electronic archives of visual observation logs. Causes and corrective actions taken associated with any excursions, noted in the maintenance log.
Reporting	Excursions will be summarized in Title V semiannual monitoring reports.	Excursions will be summarized in Title V semiannual monitoring reports.

3.3.3 Monitoring Method Justification– Alumina Scrubber Baghouse Differential Pressure

Rationale for Selection of Performance Indicator

PM control is provided by the dry alumina scrubber baghouse material and filter cake. Operation of the baghouse modules above the low end of the differential pressure range provides indication that there are no holes/tears, which would directly lead to reduced PM control. Operation below the high end of the differential pressure range provides indication that the baghouse is functioning normally and not constraining total air flow.

Rationale for Selection of Indicator Range

A performance test for PM and PM₁₀ was conducted on October 20-22, 2014. PM and PM₁₀ emissions from the Potline 5 stack were measuring during 8-hour test runs completed on each test day. As indicated in Section 3.3.1, the tested emissions were less than 10% of the limit for PM and thus there is a significant compliance margin. During the approximately total 24-hours of the three test runs, the differential pressure across all six baghouse modules averaged 8.26 in-H₂O and ranged from a low of 7.89 to a high of 8.76 in-H₂O. A review of differential pressure data in June 2015, in the quarter before Potline 5 was idled, shows that over a longer operating period, the differential pressure has a slightly wider range of approximately 7.5 to 9 in-H₂O. This wider range, during which the baghouse modules were operating and functioning normal, is therefore being proposed as the indicator range.

3.3.4 Monitoring Method Justification– Visible Emissions Observations

Rationale for Selection of Performance Indicator

Visible emissions at the Potline 5 stack would be directly related to the quantity of particulate matter emitted. Opacity readings are commonly utilized as surrogate indicators of particulate matter emissions. When the baghouse modules associated with the dry alumina scrubber reactors are operating normally, there should be no routine visible emissions. An increase in opacity or changes in VE observations would indicate process changes, changes in baghouse efficiency, or possible leaks. Thus, observations confirming no visible emissions provide evidence that the baghouse is properly functioning. Further, monitoring visible emissions is required by 40 CFR 63.848(g) and thus, pursuant to 40 CFR 64.4(b), this method is presumptively acceptable for purposes of CAM.

Rationale for Selection of Indicator Range

Any visible emissions from the stack would indicate a possible problem with the operation of the baghouse modules and thus an emission rate of particulate matter that could potentially exceed the specified emission limit. Conversely, observation of no visible emissions provides evidence that the scrubber/baghouse system is functioning normally and thus assurance of compliance with the emission limit.

4. ANODE BAKE FURNACES

4.1 EMISSION UNITS AND CONTROL DEVICE DESCRIPTION

Emission Unit Name:	Anode Bake Furnaces #1, #2 and #3
Emission Group:	33 (Carbon Bake)
Century EDNs:	3301; 3302; 3307
KyEIS Equipment ID:	EQPT0000000188
KyEIS Source ID:	41b
KyEIS Process ID:	1-6
Control Device:	Dry Alumina Scrubber 33-0140

In the green carbon plant, anodes are formed from petroleum coke, recycled spent anode material, and coal tar pitch, which serves as a binder. These green anodes are then placed in pits inside one of three anode bake furnaces. The anodes are covered with a layer of packing coke that serves as an insulating barrier to prevent the anodes from being exposed to oxygen and burning during the baking process. Natural gas burners above the pits are then ignited, and the anodes are baked or cured for several days. Once the burners are turned off, the anodes are allowed to cool gradually for two to three weeks before the packing coke is removed (for reuse) and the anodes are withdrawn from the pits. The baked anodes are then sent to rodding to be prepared for use in the potlines.

The baking process generates both particulate and gaseous emissions. Predominate pollutants emitted are PM, SO₂, VOC, POM, NO_x, CO, and fluorides.¹ The exhaust gases collected from the three bake furnaces are ducted to a shared dry alumina scrubber (33-0140) that provides control for PM/PM₁₀, POM, and fluorides and handles a flowrate of approximately 150,000 acfm. The control system incorporates an evaporative cooler (to reduce exhaust gas temperature), an alumina dry scrubber (for POM and fluoride adsorption), and a baghouse (for PM control and capture of reacted alumina).

Anode Bake Furnaces #1 and #2 were put into service in 1969 while Anode Bake Furnace #3 was put into service in 1999. The existing scrubber was installed in 1999.

4.2 CAM APPLICABILITY AND DESIGNATION

The Anode Bake Furnaces are subject to TF and POM emission limits under 40 CFR 63, Subpart LL currently. New emission limits for PM and mercury took effect in October 2016 and October 2017, respectively, based on changes promulgated to 40 CFR 63, Subpart LL on October 15, 2015. Pursuant to 40 CFR 64.2 (b)(1)(i), because the Anode Bake Furnaces are subject to TF, POM, PM, and mercury emission standards proposed and promulgated by EPA after November 15, 1990 under Section 111 or 112 of the Clean Air Act, they are exempt from the requirements of the CAM rule for these pollutants and standards.

The Anode Bake Furnaces are also subject to PM/PM₁₀, SO₂, CO, VOC, NO_x, and fluoride emission limits established pursuant to 401 KAR 51:017 (or to preclude applicability of 401 KAR 51:017 in the case of VOC). Emissions of SO₂ from the furnaces are addressed by limiting the sulfur content in the raw materials, rather than by using a control device. The dry alumina scrubber is also not a control device for CO, VOC, or NO_x. In absence

¹ Fluorides are present in the recycled butts material used in making the green anodes and some of this fluoride can be released during the baking process.

of a control device needed to comply with the BACT limits established under 401 KAR 51:017, CAM does not apply for SO₂, CO, VOC, or NO_x. As noted above, fluoride emissions are regulated under 40 CFR 63, Subpart LL and the monitoring required under 40 CFR 63, Subpart LL is presumptively acceptable for CAM. Therefore, a CAM plan has only been prepared for the PM/PM₁₀ BACT emission limit. The post-controlled emissions for the dry alumina scrubber are less than 100 tpy and thus the Anode Bake Furnaces are small PSEUs. A CAM Plan for PM/PM₁₀ is provided in the following sections.

4.3 PM/PM₁₀ CAM PLAN

4.3.1 Applicable Regulations, PM/PM₁₀ Emission Rates and Current Monitoring

Anode Bake Furnaces #1, #2, and #3 (EP 41b; Process ID 1-6)	
Pollutant:	PM/PM ₁₀
Regulation:	401 KAR 51:017 (BACT)
Emission Limit:	PM/PM ₁₀ is limited to 3.575 lb/hr (monthly average)
Pre-Controlled Emissions:	PM/PM ₁₀ : 613 tpy (based on estimated 98% control efficiency)
Controlled Emissions:	<p>PM/PM₁₀: 2.80 lb/hr; 12.3 tpy</p> <p>Post-controlled PM emissions are measured in annual stack tests. The values listed above are those from the June 2012 stack test, which is the data presented in the August 15, 2015 Title V permit renewal application. The lb/ton emission factor derived from this test (0.1 lb/ton) is multiplied by the maximum capacity of the three anode bake furnaces to define the controlled emissions value listed above. Another PM performance test was performed on June 15, 2016. Measured PM emissions from this test were 0.076 lb/ton, less than measured in 2012.</p>
CAM Designation:	Small PSEU for PM/PM ₁₀
Current PM/PM ₁₀ Monitoring Requirements:	<ul style="list-style-type: none"> • Conduct PM/PM₁₀ stack test annually. (Frequency can be reduced if two consecutive tests are less than 75% of the limit.) • Perform a qualitative visual observation of emissions from the stack on a weekly basis and maintain a log of the observation. • Perform visual opacity readings on the stack using Reference Method 9 on a quarterly basis. • Continuously monitor the flow rate and pressure drop across the dry alumina scrubber baghouse. • Operate, calibrate, and maintain a continuous monitoring system for the control equipment pursuant to the approved 40 CFR 63, Subpart LL parametric monitoring plan. • Monthly process weight rates (green anodes) and hours of operation.

4.3.2 Monitoring Methods for PM/PM₁₀

The proposed monitoring methods that provide on-going assurance of compliance with the permitted PM/PM₁₀ emission limit and monitoring performance criteria for the indicators selected are detailed in Table 4-1. In accordance with 40 CFR 64.4(b), the rationale and justification for the monitoring method and indicator ranges are provided in the subsequent sections.

Table 4-1. PM/PM₁₀ Monitoring Methods for Anode Bake Furnaces

General Criteria		
Indicator	Dry Alumina Scrubber Baghouse Differential Pressure	Visible emissions from the Dry Alumina Scrubber stack.
Measurement Approach	The differential pressure across each dry alumina baghouse module is measured by Rosemount Model 3051CD2-AO2A1AS5B4E5M5 transmitters connected to each module on the dirty side and to the discharge plenum on the clean side.	A qualified observer will conduct a visual observation twice daily (at least 4 hours apart) when weather conditions allow using Method 22.
Indicator Range	7.5 to 8.4 inches water An excursion is defined as a 2-hour average differential pressure reading outside the indicator range for an active module. An excursion will trigger an investigation of the occurrence, corrective action, and a reporting requirement. When either 2 or 3 Anode Bake Furnaces are in operation, all 4 baghouse modules are active. When only 1 Anode Bake Furnace is in operation, only 2 baghouse modules are active.	Visible emissions seen during a visual observation.
Means of Identifying Excursion	The continuous monitoring system provides an alarm notification to operators if the differential pressure reading falls outside the indicator range.	Direct viewing of the stack by a qualified observer.
Corrective Actions	In response to an excursion, appropriate personnel will troubleshoot the dry alumina scrubber baghouse and conduct repairs or maintenance as deemed necessary. Corrective actions will be documented in the plant's maintenance tracking system.	In response to an excursion (i.e., presence of visible emissions), personnel will troubleshoot the baghouse system and conduct repairs or maintenance as deemed necessary. Corrective action will be initiated within 1 hour of visible emission inspections that indicate abnormal operations. Corrective actions will be documented in the plant's maintenance tracking system.
Performance Criteria		
Data Representativeness	The pressure transmitters have a minimum accuracy of $\pm 0.075\%$.	It is assumed that the baghouse is functioning properly if there are no visible emissions from the stack.
Verification of Operational Status	The differential pressure reading is displayed on the operator's control screen. The system continuously monitors the pressure and alarms if it falls outside the indicator range.	Observer will verify that at least one anode bake furnace and the dry alumina scrubber system are operational before conducting the visual evaluation of the stack.
QA/QC Practices and Criteria	Preventative maintenance inspections are conducted monthly that include cleaning and checking of the monitoring instruments.	The baghouse modules will be maintained and operated in accordance with good air pollution control practices. Staff assigned to conduct visual observations will be provided training on Method 22 procedures to follow.

Monitoring Frequency	Continuously The baghouse differential pressure across each of the 4 baghouse modules is monitored continuously and at least one data point is electronically saved every 15 minutes when the system is in operation.	Twice Daily Visual Observations will be conducted twice daily (at least 4 hours apart).
Data Collection Procedure	15-minute instantaneous readings are recorded. The programmable logic controller (PLC) then calculates and records the rolling 2-hour average value.	Trained staff will conduct a qualitative visual observation of the opacity of emissions from the anode bake furnaces dry alumina scrubber stack following Method 22 and maintain a log of the observations. The log shall note whether any air emissions were visible from the stack.
Averaging Period	2-hours	Instantaneous determination from visual observation.
QIP Threshold	Century will develop a quality improvement plan (QIP) if there are more than 883 excursions of the differential pressure indicator in a semi-annual reporting period. This corresponds to an excursion frequency of less than 5% of total data values collected in a semiannual period (184 days/period x 24 hr/day x 4 readings/hour).	Century will develop a quality improvement plan (QIP) if there are more than 18 excursions (i.e., visible emissions recorded) during a semi-annual reporting period. This would be the equivalent of an excursion taking place for roughly 5% of the observation events (184 days x 2 readings/day).
Recordkeeping	<ul style="list-style-type: none"> Electronic archives of differential pressure 2-hr average readings. Causes and corrective actions taken associated with any excursions, noted in the maintenance log. 	<ul style="list-style-type: none"> Electronic archives of visual observation logs. Causes and corrective actions taken associated with any excursions, noted in the maintenance log.
Reporting	Excursions will be summarized in Title V semiannual monitoring reports.	Excursions will be summarized in Title V semiannual monitoring reports.

4.3.3 Monitoring Method Justification– Baghouse Differential Pressure

Rationale for Selection of Performance Indicator

PM control is provided by the dry alumina scrubber baghouse material and filter cake. Operation of the baghouse modules above the low end of the differential pressure range provides indication that there are no holes/tears, which would directly lead to reduced PM control. Operation below the high end of the differential pressure range provides indication that the baghouse is functioning normally and not constraining total air flow.

Rationale for Selection of Indicator Range

A performance test for PM and PM₁₀ was conducted on June 15, 2016. PM emissions from the Anode Bake Furnaces stack were measured during three 3-hour test runs completed while Anode Bake Furnace #3 was in operation. (Anode Bake Furnaces #1 and #2 were idle since only Potlines 2 and 4 were in operation at the plant during this period.). Two of the baghouse modules were active during the test.

During the approximately 9 total hours of the three test runs, the differential pressure across the two active baghouse modules averaged 8.09 in-H₂O and ranged from a low of 7.28 to a high of 8.31 in-H₂O. However, except for one 15-minute reading, all differential pressure values were above 7.5 in-H₂O. Measured PM emissions during this test were less than 20% of the emission limit, and even extrapolated up to the maximum production rate were less than 60% of the emission limit. Thus, there is clear evidence that operation within this pressure range is indicative that the baghouse modules are achieving a sufficiently high control efficiency. A review of differential pressure data for the most recent two quarters of data from January to June 2016, shows that over a longer operating period, the differential pressure has a slightly wider range of approximately **7.5 to 8.4 in-H₂O**. Within this period, the baghouse modules were operating and functioning normally. Therefore, as this is consistent with the results during the most recent compliant performance test, this range is being proposed as the indicator range.

4.3.4 Monitoring Method Justification– Visible Emissions Observations

Rationale for Selection of Performance Indicator

Visible emissions at the dry alumina scrubber stack would be directly related to the quantity of particulate matter emitted. Opacity readings are commonly utilized as surrogate indicators of particulate matter emissions. When the baghouse modules associated with the dry alumina scrubber is operating normally, there should be no routine visible emissions. An increase in opacity or changes in VE observations would indicate process changes, changes in baghouse efficiency, or possible leaks. Thus, observations confirming no visible emissions provide evidence that the baghouse is properly functioning. Further, monitoring visible emissions is required by 40 CFR 63.848(g) and thus, pursuant to 40 CFR 64.4(b), this method is presumptively acceptable for purposes of CAM.

Rationale for Selection of Indicator Range

Any visible emissions from the stack would indicate a possible problem with the operation of the baghouse modules and thus an emission rate of particulate matter that could potentially exceed the specified emission limit. Conversely, observation of no visible emissions provides evidence that the scrubber/baghouse system is functioning normally and thus assurance of compliance with the emission limit.

5. ANODE BUTT/ANODE ROD SHOT BLAST CLEANERS

5.1 EMISSION UNITS AND CONTROL DEVICE DESCRIPTION

Emission Unit Name:	Anode Butt Shot Blast Cleaner
Emission Group:	34 (Rodding)
Century EDN:	0096
KyEIS Equipment ID:	EQPT0000000106
KyEIS Source ID:	66
KyEIS Process ID:	1
Emission Unit Name:	Anode Rod/Stub Shot Blast Cleaner
Emission Group:	34 (Rodding)
Century EDN:	0146
KyEIS Equipment ID:	EQPT0000000106
KyEIS Source ID:	66
KyEIS Process ID:	2
Shared Control Device:	DC 34-0165

The Anode Butt Shot Cleaner station is a shot blasting system that is used to remove residual bath materials and other impurities from the surface of anode butts so that the butt material can be removed from the anode rods and recycled. The Anode Rod/Stub Shot Cleaner station is a shot blasting system that is used to remove residual butt materials from the surface of anode rods so that the rods can be reused in making new anodes. Both shot blasting systems are controlled by a Mikro Pulsair pulse jet baghouse system (DC-34-0165), which was installed in 2011. The baghouse uses polyester felt filter material with a filtering area of 3,166 ft² and a design flowrate of approximately 14,000 acfm. Pickup hoods draw exhaust from the Anode Butt Shot Blast Cleaner and Anode Rod/Stub Shot Cleaner to the baghouse.

5.2 CAM APPLICABILITY AND DESIGNATION

The uncontrolled potential emissions from each shot blast cleaner are estimated to exceed the major source threshold for PM/PM₁₀. The shared baghouse is used to ensure compliance with applicable PM emission limits under 401 KAR 61:020 and self-imposed PSD avoidance limits for PM/PM₁₀. Therefore, pursuant to 40 CFR 64.2(a), CAM applies to these PSEUs for PM/PM₁₀. The post-controlled emissions from the shot blast cleaners are less than 100 tpy and thus they are a small PSEU for PM/PM₁₀. The CAM plan for PM/PM₁₀ is documented below.

5.3 PM/PM₁₀ CAM PLAN

5.3.1 Applicable Regulations, PM/PM₁₀ Emission Rates, and Current Monitoring

Anode Butt Shot Blast Cleaner (EP 66; Process ID 1)	
Pollutant:	PM/PM ₁₀
Regulation:	Self-imposed emission limit to preclude 401 KAR 51:017 (per Title V permit)
Emission Limit:	Hourly particulate emissions as measured by Reference Method 5 averaged over three hours shall not exceed 0.732591 lbs/hr . ²
Pre-Controlled Emissions:	<p>PM: 641.8 tpy (estimated) PM₁₀: 320.9 tpy (estimated)</p> <p>Pre-controlled PM emissions for the Anode Butt and Anode Rod Shot Blast Cleaners have not been measured directly. For emission inventory purposes, they have historically been estimated using an emission factor of 17 lb/ton in AP42 Table 12.10-7 for cleaning and finishing operations at gray iron foundries. PM₁₀ emissions are approximated as 50% of PM, consistent with representations in past KyEIS submittals.</p>
Controlled Emissions:	<p>PM: 1.47 lb/hr; 6.4 tpy (estimated) PM₁₀: 0.73 lb/hr; 3.2 tpy (estimated)</p> <p>Post-controlled PM/PM₁₀ emissions have not been measured in a site-specific stack test. For emission inventory purposes, they have historically been estimated based on an assumed 99% control efficiency for the baghouse. At the calculated emission rate, the exit grain loading from the baghouse is approximately 0.013 gr/dscf. The values listed are the portion of the total emissions from DC 34-0165 attributable to the Anode Butt Shot Blast Cleaner.</p>
CAM Designation:	Small PSEU for PM/PM ₁₀
Current PM/PM ₁₀ Monitoring Requirements:	<ul style="list-style-type: none"> • Monitor 12-month rolling total and types of throughput. • Perform qualitative visual observation of the stack weekly and perform a Method 9 opacity reading if visible emissions are observed. • Follow the Preventative Maintenance Plan (PMP) cited in the permit and correct excursions to the PMP within 24 hours.

Anode Rod/Stub Shot Blast Cleaner (EP 66, Process ID 2)	
Pollutant:	PM/PM ₁₀
Regulation:	Self-imposed emission limit to preclude 401 KAR 51:017 (per Title V permit)
Emission Limit:	Hourly particulate emissions as measured by Reference Method 5 averaged over three hours shall not exceed 0.855822 lbs/hr.
Pre-Controlled Emissions:	PM: 749.7 tpy (estimated) PM ₁₀ : 374.9 tpy (estimated)
Controlled Emissions:	PM: 1.71 lb/hr; 7.5 tpy (estimated) PM ₁₀ : 0.85 lb/hr; 3.7 tpy (estimated) The values listed are the portion of the total emissions from DC 34-0165 attributable to the Anode Rod/Stub Shot Blast Cleaner. At the calculated emission rate, the exit grain loading from the baghouse is approximately 0.013 gr/dscf.
CAM Designation:	Small PSEU for PM/PM ₁₀
Current PM/PM ₁₀ Monitoring Requirements:	(Same as for Anode Butt Shot Blast Cleaner)

5.3.2 Monitoring Methods for PM/PM₁₀

The proposed monitoring methods that provide on-going assurance of compliance with the permitted PM/PM₁₀ limits and monitoring performance criteria for the indicators selected are detailed in Table 5-1. In accordance with 40 CFR 64.4(b), the rationale and justification for the monitoring methods and indicator ranges are provided in the subsequent sections.

Table 5-1. PM/PM₁₀ Monitoring Methods for Anode Butt/Anode Rod Shot Blaster

General Criteria	
Indicator	Visible emissions from the baghouse stack.
Measurement Approach	A qualified observer will conduct a visual observation daily when weather conditions allow.
Indicator Range	Visible emissions seen during a visual observation.
Means of Identifying Excursion	Direct viewing of the stack by a qualified observer.
Corrective Actions	In response to an excursion (i.e., presence of visible emissions), a certified opacity reader will conduct a Method 9 observation to measure the opacity. Personnel will troubleshoot the emission unit and baghouse system and conduct repairs or maintenance as deemed necessary. Corrective actions will be documented in the plant's maintenance tracking system.
Performance Criteria	
Data Representativeness	It is assumed that the baghouse is functioning properly and thus the emissions unit is in compliance with the PM/PM ₁₀ limits if there are no visible emissions from the stack and if the baghouse is operated and properly maintained.
Verification of Operational Status	Observer will verify the shot blast cleaners are operational before conducting the visual evaluation of the stack.
QA/QC Practices and Criteria	The baghouse and shot blasting equipment will be maintained and operated in accordance with good air pollution control practices. Staff assigned to conduct visual observations will be provided training on procedures to follow.
Monitoring Frequency	Visual Observations will be conducted at least once daily during daylight hours, weather permitting.
Data Collection Procedure	Trained staff will conduct a qualitative visual observation of the opacity of emissions from the stack serving DC 34-0165 and maintain a log of the observations. The log shall note whether any air emissions (except for water vapor) were visible from the stack. If performed, the results from each Method 9 reading shall also be recorded. Any measures taken to comply with the Preventive Maintenance Plan shall also be recorded.
Averaging Period	Instantaneous determination from visual observation.
QIP Threshold	Century will develop a quality improvement plan (QIP) if there are more than nine excursions (i.e., visible emissions recorded) during a semi-annual reporting period. This would be the equivalent of an excursion taking place for roughly 5% of the observation events.
Recordkeeping	<ul style="list-style-type: none"> Electronic archives of visual observation logs. Causes and corrective actions taken associated with any excursions, noted in the maintenance log.
Reporting	Excursions will be summarized in Title V semiannual monitoring reports.

5.3.3 Monitoring Method Justification– Visible Emissions Observations

Rationale for Selection of Performance Indicator

The visible emissions are directly related to the quantity of particulate matter emitted from the stack. Opacity readings are commonly utilized as surrogate indicators of particulate matter emissions. When the baghouse controlling the shot blast cleaners is operating normally, there should be no routine visible emissions. Thus, observations confirming no visible emissions provide evidence that the baghouse is properly functioning.

Rationale for Selection of Indicator Range

Any visible emissions from the stack would indicate a possible problem with the operation of the baghouse and thus an emission rate of particulate matter that could potentially exceed the specified emission limit. Conversely, observation of no visible emissions provides evidence that the baghouse system is functioning normally and thus assurance of compliance with the emission limit.

APPENDIX B

40 CFR 63, Subpart LL PARAMETRIC MONITORING PLAN According to 40 CFR 63.848(f)

Revision Date: January 19, 2018



Parametric Monitoring Plan And Alternative Monitoring Method Application

Hawesville, KY

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1.0 PURPOSE OF THE PLAN

National air emission standards for hazardous air pollutants (HAPs) for primary aluminum reduction plants were promulgated on October 7, 1997. These regulations have been incorporated into the federal code at 40 CFR Part 63, and are referred to as National Emission Standard for Hazardous Air Pollutants (NESHAP) for primary aluminum reduction plants.

This standard sets forth maximum allowable emission levels from aluminum reduction potlines, anode paste production plants, anode bake furnaces, and new (or reconstructed) pitch storage tanks (the actual emission limits are listed in 40 CFR 63.843 for existing sources and at 63.844 for new/reconstructed sources). Emissions targeted in these regulations are total fluorides (TF) and polycyclic organic matter (POM).

The primary aluminum NESHAP standard requires that the emission control stack be tested annually and the roof monitors monthly for prebaked anode potlines, as well as annual testing of anode bake furnace emissions, and daily visual assessment of the emissions from each control device. ¹In addition, continuous parametric monitoring and periodic inspection of emission control devices must be performed under 40 CFR 63.848(f). The general provisions for NESHAP, however, allow regulated facilities to propose alternative monitoring methods (40 CFR 63.8(f)) that, if approved by the regulatory authority, may be used as a surrogate means to demonstrate compliance with relevant standards, provided the requirements of 40 CFR 63.8(f)(4)(i),(ii), and (iii) are met.

Century Aluminum of Kentucky (Century) notified the Kentucky Division of Air Quality and USEPA Region IV on November 11, 1997 that some of the facility processes were subject to the provisions of the rule. Consequently, Century developed and implemented a Testing and Parametric Monitoring Plan for the covered processes. The plan was put into place by the deadline of October 8, 1999 for the existing sources and immediately upon startup for new or reconstructed sources (Line 5, Carbon Bake Oven 3). The Parametric Monitoring Plan was last amended in June 2001. The purpose of this plan is to amend the existing plan to address concerns raised by EPA regarding the sufficiency of the existing plan.

The goal of this plan is to describe the methods by which Century will monitor the control equipment on affected sources using methods which employ parametric monitoring rather than direct parameter sampling and testing.

The procedures described herein are subject to approval by the Kentucky Division for Air Quality (the EPA-authorized state implementation authority) as required by 40 CFR 63.8(f).

The following plan has been designed to satisfy the requirements found in 40 CFR Part 63.8(f) and 40 CFR part 63.848.

This plan does not circumvent any existing requirements related to state or local regulations or permits. Those requirements should be reviewed and if necessary included as part of the reporting and record keeping provisions of this plan.

¹ The testing requirements do not apply for the Paste Production Plant/Anode Former, but daily visual assessment for the control device is required.

2.0 APPLICABLE SOURCE DESCRIPTIONS & REGULATED EMISSIONS

Century is primary aluminum reduction facility. The primary raw material purchased by the plant is alumina (aluminum oxide), which it reduces through an electrolytic process to produce aluminum metal. To support the aluminum reduction activities, the facility also manufactures carbon-based electrodes (anodes) which are continuously consumed during the electrolytic reduction reactions. The three main processes that are carried out at Century are anode formation, anode baking, and alumina reduction. These processes are described in more detail below, along with their NESHAP-defined emission limits.

Source: Potlines 1-4 (CWPB3 reduction cells)

Emission Points: Stack – 84
Roof Monitors – 85, 86, 87, 88

Control Device: Wet Scrubber System 432001 (*Multiclones, Electrostatic Precipitators, Wet Scrubber Towers – Controls ducted emissions only.*)

Description: The aluminum reduction process takes place in rectangular structures called pots. A line of pots that are connected electrically in series is known as a potline. There are five potlines at Century, and each consists of 112 individual pots. The pots contain a bath of molten cryolite (sodium aluminum fluoride) into which dry alumina is added (dissolved). Anodes are lowered into the bath, and current flows from the anode, through the bath, and into the carbon potlining (cathode). The current flow serves to heat the pot and keep the bath molten, and provides the energy for the electrolytic reduction of the alumina to aluminum, which accumulates as a molten aluminum layer as the aluminum settles to the bottom of the bath.

The pots are run in a semi-continuous batch mode during which alumina is periodically added and molten aluminum tapped (removed). The pots are hooded, and the exhaust gasses produced during the electrochemical reaction are captured and directed to the emission control system. The hoods are made up of individual sections called shields that are removed when the pot needs to be worked.

Due to the need to periodically add alumina and to replace anodes as they are consumed, the pots are not completely sealed structures. Therefore, not all of the exhaust is collected by the fume hood venting system. Secondary emissions from this process are released through the roof monitors (vents) that run the length of each potroom (the buildings that house each potline). The secondary emissions are controlled (limited) by standard operating procedures that are enacted to limit the amount of time the pot shields are removed and by properly governing the electrochemical reaction by regulating various process parameters (such as the alumina feed rate, bath composition, voltage, current, etc.). Also proper maintenance practices are used to maintain the physical condition of the hood shields.

Regulated Emissions: Potlines 1-4 were constructed in 1969. These lines are of the type identified in the NESHAP Standard as CWPB3 (Center-Worked Pre-Bake, type 3) (40 CFR 63.842). The NESHAP Standard limits only TF emissions from existing potlines of this type. The primary emissions from these potlines pass through one of two identical emission control trains that consist of a series of multiclones, electrostatic precipitators, and wet scrubbers in series. Lines 1 and 2 are vented through the East multiclones and ESPs, while Lines 3 and 4 are vented through the West multiclones and ESPs. The system is not ducted in such a way that the East can also control emissions from the West or vice versa. Once the gas passes through the ESPs, it is ducted to a common header which distributes the flow to all scrubber towers.

As stated in the regulations (40 CFR 63.843), the monthly average TF emission from each CWPB3 potline may not exceed 2.5 lb/ton of aluminum produced. Century does not use emission averaging for Potlines 1-4.

Source:	Potlines 5 (CWPB1 reduction cells)
Emission Points:	Stack – 89 Roof Monitors – 90
Control Device:	Dry Alumina Scrubber 480063 (<i>Controls ducted emissions only.</i>)
Description:	<p>The aluminum reduction process in Potline 5 is essentially identical to the process in Potlines 1 through 4.</p> <p>There are two distinct differences between Potlines 1-4 and Potline 5.</p> <ol style="list-style-type: none"> 1) The design of the roof vents on Potline 5 are mono-vents versus the low profile vents installed on Potlines 1-4. As a result, the Potline 5 vents have roughly three times the airflow of the vents on Potlines 1-4. 2) The fume collection system and accompanying pot duct work are designed to evacuate fumes from the individual reduction cells at a rate of 3,500 scfm per cell. The Potline 1-4 fume collection system and accompanying ductwork are designed to evacuate fumes from the individual reduction cells at a rate of 2,500 scfm per cell.
Regulated Emissions:	<p>Potline 5 was constructed and began operation in April 1999. This potline is of the type identified in the NESHAP Standard as CWPB1 (40 CFR 63.842) and as a newly constructed source, the NESHAP Standard imposes emission limits on TF. The primary emission control system for Potline 5 consists of a dry alumina scrubber and a baghouse.</p> <p>The primary aluminum NESHAP regulations limit the TF emissions from a new CWPB1 potline to 1.2 lb/ton of aluminum produced (40 CFR 63.844)(a)(i).</p>
Source:	Anode Baking Furnace (Carbon Bake)
Control Device:	Dry Alumina Scrubber 330140
Emission Point:	41
Description:	<p>After the anodes have been formed and cooled, they are placed in pits inside an anode bake oven. The anodes are covered with a layer of packing coke that serves as an insulating barrier to prevent the anodes from being exposed to oxygen and burning during the baking process. Natural gas burners above the pits are then ignited, and the anodes are baked or cured for several days. Once the burners are turned off, the anodes are allowed to cool gradually for two to three weeks before the packing coke is removed (for reuse) and they are withdrawn from the oven pits.</p>
Regulated Emissions:	<p>The NESHAP standard has set limits on the anode bake furnace exhaust for POM and TF (fluoride enters the process from the carbon that is recycled from spent anodes).</p> <p>Century has two existing bake ovens that were put into service in 1969. A third furnace was placed into operation in late 1999. The exhaust from all three ovens is ducted to a common emission control system. This system incorporates an evaporative cooler (to reduce exhaust gas temperature), an alumina dry scrubber (for POM and fluoride adsorption), and a baghouse.</p> <p>Because all three bake ovens exhaust through a common stack, the applicable anode bake furnace limits are found in 40 CFR 63.844(c) and 40 CFR 63.843(c). Because of the combination of new and existing, Century has proposed a compliance demonstration formula based upon measuring the concentration of pollutants exiting each furnace and applying the measured control efficiency to the control device and the emission rate for each furnace. Emission limits for existing baking furnaces is 1.8 lbs POM/ton of green anode and 0.20 lbs TF/ton of green anode. Emission limits for new baking furnaces are 0.08 lbs POM/ton of green anode and 0.02 lbs TF/ton of green anode.</p>

Source: Paste Production Plant/Anode Former (Green Carbon)

Control Device: Dry Coke Scrubber 310126

Emission Point: 28

Description: Carbon anodes are a mixture of petroleum coke and pitch. The first step in the process of manufacturing aluminum reduction anodes involves crushing coke aggregate and recycled carbon from used anodes and classifying it into fractions. The coke fractions are mixed in the proper proportion with coal tar pitch to create an anode paste. Finally, this paste is vibro-compacted in molds and cooled to form solid anode blocks

Regulated Emissions: Polycyclic organic matter (POM) emissions from the anode forming process are subject to the Primary Aluminum NESHAP Standard. All of the non-process pitch storage tanks at Century were in use before the promulgation of the NESHAP Standard (which regulates POM emissions from such tanks only if they have been installed, reconstructed, or modified after the standard was enacted).

To control POM emissions from the anode forming process line, exhaust gas is collected and passed through a venturi dry coke scrubber (for POM adsorption) and a bag house prior to being released to the atmosphere.

The regulations identify a dry coke scrubber as the required Control Technology for the emissions from the paste production process (40 CFR 63.843). As described above, Century has installed a dry coke scrubbing system for emissions control on the paste production line.

3.0 PARAMETRIC MONITORING METHODOLOGY AND RATIONALE

3.1. Carbon Bake

A. Regulated Source(s)

Description: Anode Baking Furnaces 1, 2, & 3

Emission Source Group: 33

Equip Designation(s): 3301, 3302, 3307

Facility: Century Aluminum of KY

B. Applicable Regulations and Emission Limits

Regulation(s): 40 CFR Part 63, Subpart LL
401 KAR 59:010
401 KAR 51:017

Emission Limit(s):	Total Fluoride (Gaseous+Particulate)	0.2 lbs/ton green anode (existing) 0.02 lbs/ton green anode (new)
	Polycyclic Organic Matter (POM)	0.18 lbs/ton green anode (existing) 0.05 lbs/ton green anode (new)

Monitoring Requirement(s): Alumina Flow Rate
Exhaust Gas Flow Rate
Gas Temperature (inlet to baghouse)
Visible Emissions (Qualitative and Method 9)

C. Control Technology

Dry Alumina Scrubber 330140 as common control device for all three regulated sources.

Emission Point 41

3.1.1 Monitoring Approach

A. Indicator	Gas Flow Rate	Alumina Flow Rate	Gas Temperature (BH Inlet)	Visible Emissions
Measurement Approach	Differential pressure is continuously measured at multiple locations by Rosemount Differential Pressure Transmitters and then flow is calculated into a total flow using calculation described in operating manual Section 2, Page 8-9 (Appendix A).	The frequency of the rotary vane feeder monitored in hertz by 1771-IFE Analog Input Cards, translated to rotations, and then, knowing the pocket fill, calculated to lbs/hr of flow.	The temperature of the exhaust gas entering the baghouse is continuously monitored	Visible emissions will be observed by a trained observer at least once per day if weather permits. If visible emissions are observed which are indicative of abnormal operation, a full Method 9 will be conducted within 1 hour or whenever weather permits.
B. Indicator Range	119,232-145,728 scfm	≥43 Hz (3,475 lbs/hr)	170-208 °F	Visible Emissions - Daily < 20% - Method 9 Excursions trigger inspection, corrective action, and reporting.
C. Performance Criteria	The pressure transmitters have a minimum accuracy of ± 0.075%	±0.5%	±0.6%	Observations are performed at the stack exhaust while the unit is operating.
Data Representativeness				
Verification of Operational Status	The system continuously monitors for flow and will alarm the operator if a low gas flow condition exists.	The system has flow sensors at the rotary airlock discharge, the distribution box which distributes alumina to the reactor modules, and at each reactor module. If the airlock is not operating, the distribution box does not discharge, or the reactor modules are not receiving flow, then an alarm displays on the operators screen requiring operator intervention.	NA	NA
QA/QC Practices and Criteria	The pressure transmitters are calibrated annually to a NIST traceable standard.	Verification that actual flow exiting the feeder matches expected flow once per quarter. Inspection and adjustment of vane blade clearance to manf. specs. once per quarter.	The thermocouples and temperature transmitters are calibrated annually to a NIST traceable standard.	Observers recertified to M9 every 6 months
Monitoring Frequency	Continuously	Continuously	Continuously	Daily qualitative, M9 quantitative if visible emissions are observed. M9 minimum once per week
Data Collection Procedures	15 minute instantaneous readings are recorded. The PLC then calculates and records 2-hr average using the 15-minute readings.	15 minute instantaneous readings are recorded. The PLC then calculates and records 2-hr average using the 15-minute readings.	15 minute instantaneous readings are recorded. The PLC then calculates and records 2-hr average using the 15-minute readings.	Qualitative recorded by operator Quantitative documented on SSOP 810-011FA Both kept for at least five years
Averaging Period	2 hours	2 hours	2 hours	6 minute

3.1.2 Monitoring Approach Justification

A. Background

After the anodes have been formed and cooled, they are placed in pits inside an anode bake oven. Century operates three such ovens. Two existing bake ovens were put into service in 1969 and have not been rebuilt. A third oven was placed into operation in late 1999. The furnaces have a combined permitted capacity of 245,100 tons/year of unbaked anodes and 900 mmcf/year of natural gas. Also in 1999, a control device was constructed to control the pollutant emissions from the baking process and exhaust from all three ovens was ducted to this common emission control system.

The pollutant-specific emissions controls include a dry alumina scrubber consisting of an evaporative cooler (to reduce exhaust gas temperature), an alumina dry scrubber (for POM and fluoride adsorption), and a baghouse (for particulate). 40 CFR 63, Subpart LL has established limits for the anode baking furnace exhaust for polycyclic organic matter (liberated from pitch used as a binding agent in the anode) and total fluoride (fluoride enters the process from the carbon that is recycled from spent anodes). Existing source limits apply to furnaces 1 and 2. New source limits apply to furnace 3.

Because of the combination of new and existing, Century has proposed and submitted an alternative testing plan and compliance demonstration formula based upon the measured control efficiency of the control device and the emission rate for each furnace.

40 CFR Subpart LL – Primary Aluminum MACT (PMACT) specifies in 40 CFR 63.848(f)(1) that devices shall be installed for the measurement of air flow and alumina flow for dry alumina scrubbers. Under the provisions of 40 CFR 63.848(l), Century proposes to monitor alternative operating parameters for alumina flow. Justification for the monitoring of these alternate parameters is described in 3.1.1, 3.1.2(B) and 3.1.2(C) and includes the following as prescribed in 40 CFR 63.2 under the definition of *monitoring*:

- Indicators of performance (3.1.2 (B) - Rationale for Selection of Performance Indicators)
- Measurement techniques (3.1.2 (C) - Rationale for Selection of Indicator Range)
- Monitoring frequency (Table 3.1.1 shows the monitoring frequency)
- Averaging time (Table 3.1.1 shows the averaging time)

B. Rationale for Selection of Performance Indicators

Gas Flow

Gas flow was selected because it is a required monitoring parameter established by 40 CFR 63.848(f)(1). The exhaust gas flow is part of a control loop set by the equipment manufacturer where differential pressure and temperature are continuously measured and then calculated by the control system to determine gas flow in SCFM which is recorded to the PLC. See Appendix A for details of the calculations.

Alumina Flow

Alumina flow it is a required monitoring parameter established by 40 CFR 63.848(f)(1). Because the design of the scrubber is not equipped to directly measure alumina flow, was not designed to control alumina flow by such a device, and because of the physical arrangement of the equipment will not allow for the installation of such a device, Century has chosen to monitor flow by an alternate method as described below and believes it to be as accurate as a direct measurement.

The scrubber is designed by the manufacturer for alumina flow to be controlled manually by a rotary airlock variable speed controller. The feed rate set point was originally set and calibrated by the manufacturer at start-up in accordance with the system mass balance.

By measuring the set-point of the rotary airlock drive frequency (Hertz) we can determine the number of feeder revolutions at that drive frequency. The equipment manufacturer identified the amount of material transferred during one revolution. By multiplying the number of revolutions by the amount of material per revolution, we can then determine the amount of material being transferred.

To verify that the material being transferred meets the design criteria, once per month Century will compare the expected amount of material transferred in a given number of revolutions to the actual amount of material transferred by manually running material from the feeder into a container, weight the amount of material captured, and comparing that reading to the expected amount of material that should be transferred.

See Appendix B for details of the calculation and correlation between hertz and tons/hr.

To ensure that the alumina feed system is not plugged, the alumina distribution system is equipped with flow sensors to detect the presence (or absence) of alumina flow at the following locations:

- the rotary airlock discharge,
- the distribution box which distributes alumina to the reactor modules,
- each reactor module (four total).

If the airlock is not operating, the distribution box does not discharge material, or the reactor modules are not receiving alumina flow, then an alarm displays on the operators screen requiring operator inspection, intervention, and potentially reporting.

Also, to ensure that the rotary vane feeder is performing as designed, routine preventative inspection and maintenance are performed. In particular, the gap between the adjustable vane blades and the housing is measured and compared to original design tolerances. Adjustments are made to the vanes blades as necessary to ensure the gap is within tolerance.

Century believes that by monitoring these parameters and performing the necessary maintenance, that alumina flow can be accurately and reliably measured to ensure continuous compliance. This has been confirmed during the previous performance test in which POM and TF were within permit limits.

Gas Temperature (Inlet to Baghouse)

Gas temperature at the inlet to the baghouse was selected because it is essential for two reasons:

- Gas temperatures that are too low can cause condensation of liquid POM and subsequent damage to the duct work and baghouse; and
- Gas temperatures that are too high may damage the bags and cause the POM remain in a gaseous state and reduce the efficiency of the system.

Visible Emissions

Visible emissions was selected because it is a required monitoring parameter established by 40 CFR 63.848(g). An increase in opacity or changes in VE observations indicate process changes, changes in baghouse efficiency, or leaks.

C. Rationale for Selection of Indicator Range

The indicator range for gas flow was established during the most recent performance test. It is based upon the average scrubber gas flow of 132,480.10 scfm \pm 10% which results in a range of 119,232-145,728 SCFM. An excursion is defined as any period during which the 2-hr average gas flow drops is outside of the established range.

The indicator range for gas temperature (inlet to the baghouse) was established during the most recent performance test. It is based upon the average gas temperature of 189.3 \pm 10% which results in a range

of 170-208 °F. An excursion is defined as any period during which the 2-hr average gas temperature drops is outside of the established range.

The indicator range for alumina flow was established during the most recent performance test. It is based upon the rotary vane feeder drive frequency of 43 Hz (3,475 lbs/hr) measured during the test. This is established as a minimum alumina flow. Alumina flow does not require an upper limit because more alumina flow will not reduce the efficiency of the adsorption of HF in the gas stream. An excursion is defined as any period during which the 2-hr average drive frequency drops is below 43 Hz.

Stack emissions will be observed by a trained observer on a daily basis for any evidence of visible emissions indicating abnormal operation. If visible emissions are observed which are indicative of abnormal operation, a full Method 9 will be conducted whenever weather permits and corrective action will be initiated within one hour per 40 CFR 63.848(h), beginning with an evaluation of the occurrence to determine the action required to correct the situation. All excursions will be documented and reported. An excursion is defined as any Method 9 opacity reading $\geq 20\%$ or visible emissions with less than 20% opacity that are found to be associated with abnormal operation.

In addition to these indicators, Century will record the status alumina flow alarms to the PLC continuously (every 15 minutes).

All indicator ranges for control devices will be evaluated and reestablished during the next performance test.

3.2 Potline 5

A. Regulated Source(s)

Description: Potline 5 (Stack and Roof Monitor)
Emission Source Group: 42
Equip Designation(s): 4250, 3091
Facility: Century Aluminum of KY

B. Applicable Regulations and Emission Limits

Regulation(s): 40 CFR Part 63, Subpart LL
Emission Limit(s): Total Fluoride (Gaseous+Particulate) 1.2 lbs/ton of Al produced
Monitoring Alumina Flow Rate
Requirement(s): Exhaust Gas Flow Rate
Visible Emissions (Qualitative and Method 9)

C. Control Technology

Dry Alumina Scrubber 480063 for ducted emissions from individual reduction cells

Stack – Emission Point 89

Roof Monitor – Emission Point 90

3.2.1 Monitoring Approach

A. Indicator	Gas Flow Rate	Alumina Flow Rate	Visible Emissions	Potshield Maintenance
Measurement Approach	Gas flow is ensured by measurement of system differential pressure at the manifold leading to the baghouse (system pressure).	Alumina flow is measured in lbs/hr by a Milltronics Model E-40 impact flow meter and recorded to the PLC every 15 minutes and combined as a 2-hour rolling average.	Visible emissions will be observed by a trained observer at least once per day if weather permits. If visible emissions are observed which are indicative of abnormal operation, a full Method 9 will be conducted within 1 hour or whenever weather permits.	Shields are informally inspected daily by operators as part of the SSOP for anode changing. Shields are formally inspected weekly.
B. Indicator Range	3.41-3.59 in H ₂ O	> 19,623 lbs/hr	Visible Emissions - Daily < 20% - Method 9 Excursions trigger inspection, corrective action, and reporting.	Informal daily inspections will result in realignment of shields as necessary. Formal weekly inspection will identify damage creating gaps.
C. Performance Criteria	The pressure transmitters have a minimum accuracy of $\pm 0.075\%$	$\pm 0.5\%$	Observations are performed at the stack exhaust while the unit is operating.	NA
Data Representativeness				
Verification of Operational Status	This system pressure is displayed on the operator's control screen. The system continuously monitors the system pressure and alarms the operator if it falls below the minimum.	The system has flow sensors at the alumina distribution box and at each reactor module. If the distribution box does not discharge or the reactor modules are not receiving flow, then an alarm displays on the operators screen requiring operator intervention.	NA	NA
QA/QC Practices and Criteria	The pressure transmitters will be calibrated annually to a NIST traceable standard.	The impact flowmeter will be calibrated annually to a NIST traceable standard.	Observers recertified to M9 every 6 months	Operators are trained to the SSOP and alignment practices. Personnel performing weekly inspections are trained to indentify shields that need replacement.
Monitoring Frequency	Continuously	Continuously	Daily qualitative, M9 quantitative if visible emissions are observed. M9 minimum once per week	Informal – Daily Formal - Weekly
Data Collection Procedures	15 minute instantaneous readings are computed and recorded. The PLC then calculates and records 2-hr average using the 15-minute readings.	15 minute instantaneous readings are recorded. The PLC then calculates and records 2-hr average using the 15-minute readings.	Qualitative recorded by operator Quantitative documented on SSOP 810-011FA Both kept for at least five years	Informal – NA Formal – Documented electronically with corrective action tracked to completion
Averaging Period	2 hours	2 hours	6 minute	NA

3.2.2 Monitoring Approach Justification

A. Background

The aluminum reduction process in Potline 5 is essentially identical to the process in Potlines 1 through 4.

There are two distinct differences between Potlines 1-4 and Potline 5.

- 1) The design of the roof vents on Potline 5 are mono-vents versus the low profile vents installed on Potlines 1-4. As a result, the Potline 5 vents have roughly three times the airflow of the vents on Potlines 1-4.
- 2) The fume collection system and accompanying pot duct work are designed to evacuate fumes from the individual reduction cells at a rate of 3,500 scfm per cell. The Potline 1-4 fume collection system and accompanying ductwork are designed to evacuate fumes from the individual reduction cells at a rate of 2,500 scfm per cell.

Potline 5 was constructed and began operation in April 1999. This potline is of the type identified as CWPB1 (40 CFR 63.842) and as a “new” source, the NESHAP Standard imposes the emission limits on TF.

The pollutant-specific emissions unit is a dry alumina scrubber consisting (for fluoride adsorption) and a baghouse (for particulate). 40 CFR 63, Subpart LL has established limits for the Potline 5 exhaust for total fluoride.

40 CFR Subpart LL – Primary Aluminum MACT (PMACT) specifies in 40 CFR 63.848(f)(1) that devices shall be installed for the measurement of air flow and alumina flow for dry alumina scrubbers. Under the provisions of 40 CFR 63.848(l), Century proposes to monitor alternative operating parameters for air flow. Justification for the monitoring of these alternate parameters is described in 3.2.1, 3.2.2(B) and 3.2.2(C) and includes the following as prescribed in 40 CFR 63.2 under the definition of *monitoring*:

- Indicators of performance (3.2.2 (B) - Rationale for Selection of Performance Indicators)
- Measurement techniques (3.2.2 (C) - Rationale for Selection of Indicator Range)
- Monitoring frequency (Table 3.2.1 shows the monitoring frequency)
- Averaging time (Table 3.2.1 shows the averaging time)

B. Rationale for Selection of Performance Indicators

Gas Flow

Gas flow is a required monitoring parameter established by 40 CFR 63.848(f)(1). The scrubber was not designed to directly measure gas flow and any device that would have been installed in the stack could not accurately measure gas flow because it would routinely become fouled by the water/particulate emissions from the wet component. Gas flow through the scrubber (and subsequently from the reduction cells) is controlled electronically by measuring system differential pressure. Century has chosen to monitor flow by per an alternate method as described below.

Flow is ensured through the system by the operation of two of three induced draft fans. Each of the three fans has a capacity equivalent to 50% of the total flow, meaning that two fans are continuously operating while one is in a stand-by mode.

By manufacturer design, system differential pressure measured at the manifold leading to the baghouse is used to control the air flow through the scrubber by modulating the fan dampers to ensure a minimum 3,500 SCFM take-off flow or minimum of 2 in H₂O constant suction pressure at each of the 112 reduction cell ducts. This translates into a system differential pressure of at least 3.0 in H₂O. In the event that an individual reduction cell is taken off-line for maintenance, the total flow coming from each cell is

distributed equally to the remaining operating reductions cells by the use of an interconnecting duct located in between the two main ductwork systems.

The design gas flow at 3,500 SCFM per reduction cell is equal to 392,000 SCFM total system gas flow rate. The scrubber is designed for an additional 10,000 SCFM to be introduced into the system from venting of fluidizing air and infiltration. Therefore at a system differential pressure of 3.0 in H₂O the total design flow rate is 402,000 SCFM. Through performance testing Century has determined that an average system pressure of 3.5 in H₂O produces optimum results and does not reduce performance of the scrubber and has resulted in an average air flow of approximately 418,257 SCFM.

Adjustments to fan dampers would increase or decrease air flow through the ductwork would directly affect the system pressure.

Century believes that by monitoring these parameters, gas flow can be accurately and reliably measured to ensure continuous compliance. This has been confirmed during the previous performance test in which TF were within permit limits.

Alumina Flow

Alumina flow was selected because it is a required monitoring parameter established by 40 CFR 63.848(f)(1). The alumina distribution system monitors flow by the use of a Milltronics E-40 impact flow meter.

Alumina flows out of the storage silo through a rotary valve into a vibrating screen and then to the impact flow meter that adjusts the rotary valve speed. The material then flows to a fluidized distribution box where it is evenly distributed to the operating venturi reactors.

To ensure that the alumina feed system is not plugged, the alumina distribution system is equipped with flow sensors to detect the presence (or absence) of alumina flow at the following locations:

- the rotary airlock discharge,
- the distribution box which distributes alumina to the reactor modules,
- each reactor module (six total).

If the airlock is not operating, the distribution box does not discharge material, or the reactor modules are not receiving alumina flow, then an alarm displays on the operators screen requiring operator inspection, intervention, and potentially reporting.

Also, to ensure that the rotary vane feeder is performing as designed, routine preventative inspection and maintenance are performed. In particular, the gap between the adjustable vane blades and the housing is measured and compared to original design tolerances. Adjustments are made to the vanes blades as necessary to ensure the gap is within tolerance.

Visible Emissions

Visible emissions was selected because it is a required monitoring parameter established by 40 CFR 63.848(g). An increase in opacity or changes in VE observations indicate process changes, changes in baghouse efficiency, or leaks.

Potshield Maintenance, Stability, and Removal

To ensure the shields are in adequate alignment and condition to obtain proper collection efficiency of pot gases, Century performs two types of inspections and maintenance 1) a daily informal inspection and alignment of shields by the operators and supervisors as they change perform their normal work on the reduction cells and 2) a weekly formal inspection of shields to verify that the operators are performing their job adequately, to identify any shields that are damaged to a point that excess gap is created, and to verify that previously identified damage has been corrected. This data is documented electronically and

the corrective action is tracked electronically to completion. Records of these inspections are maintained for at least five years.

Occasionally a reduction cell becomes chemically unstable. When this happens, the cell gets hot and needs to be cooled rapidly. To do this, the shields are removed from the pot. Returning a chemically unbalanced pot to a stable condition is preferred over removing the pot from service due to the emissions generated during the restart of a previously inactive pot. It takes less time and results in less overall emissions to re-stabilize the upset pot than to remove a pot from service and restart. To reduce excess emissions during pot upset conditions, Century will keep sick pots covered unless absolutely necessary for cooling. Should a sick pot require uncovering, it may not remain uncovered for more than 24 hours. The date and time that the sick pot is uncovered and recovered is documented electronically. An unshielded sick pot is defined as a condition when shields are removed on a production unit (Pot) as a result of its unsettled condition and is not a part of startup or the normal work practice.

There are two primary activities involved with producing aluminum in the potlines: 1) anode change and 2) tapping. During anode change shields must be removed to access and change the anodes. To minimize emissions during this process, Century limits the number of shields that can be removed at the same time to no more than three shields removed from no more than four pots at the same time in one room. During tapping end doors must be opened in order to prepare the pot for the tapping process and to perform tapping. To minimize emissions during the process Century limits the number of end doors that can be opened at the same time to no more than three in one room. Ancillary activities may also require the removal of shields or opening of end doors. The same guidelines apply to those ancillary activities.

C. Rationale for Selection of Indicator Range

The indicator range for system differential pressure was established during the most recent performance test. It is based upon the average instantaneous differential pressure of 3.5 in H₂O \pm 1 standard deviation which results in a range of 3.41-3.59 in H₂O. Differential pressure readings in this range ensure efficient operation. An excursion is defined as any period during which the 2-hr average gas flow drops is outside of the established range or any period where less than 2 fans are operating.

The indicator range for alumina flow was established during the most recent performance test. It is based upon the average instantaneous alumina flow of 19,942.99 lbs/hr -1 standard deviation. This is established as a minimum alumina flow. Alumina flow does not require an upper limit because more alumina flow will not reduce the efficiency of the adsorption of HF in the gas stream. An excursion is defined as any period during which the 2-hr average alumina flow is below 19,623.13 lbs/hr.

Stack emissions will be observed by a trained observer on a daily basis for any evidence of visible emissions indicating abnormal operation. If visible emissions are observed which are indicative of abnormal operation, a full Method 9 will be conducted whenever weather permits and corrective action will be initiated within one hour per 40 CFR 63.848(h), beginning with an evaluation of the occurrence to determine the action required to correct the situation. All excursions will be documented and reported. An excursion is defined as any Method 9 opacity reading \geq 20% or visible emissions with less than 20% opacity that are found to be associated with abnormal operation.

The combination of informal and formal shield inspections provides assurance on a daily basis that abnormal conditions are identified and addressed, as appropriate. Given the large number of cells per potline (112) with each cell containing 20 shields, it is not practical to conduct formal inspections on a daily basis. Informal inspections by operators nevertheless provide daily review of shield alignment and the formal inspections provide oversight review of those activities. The number of shields and end doors that can be either removed or opened is based upon the minimum number necessary to complete the tasks.

When an excursion occurs, corrective action will be initiated within one hour per 40 CFR 63.848(h), beginning with an evaluation of the occurrence to determine the action required to correct the situation. All excursions will be documented and reported.

In addition to these indicators, Century will record the status alumina flow alarms to the PLC continuously (every 15 mins).

All indicator ranges for control devices will be reestablished during the next performance test.

3.3 Green Carbon

A. Regulated Source(s)

Description: Green Carbon (Anode Paste Production Plant)

Emission Source Group: 31

Equip Designation(s): 0351-0359, 0362, 0364, 2035, 2037, 0425, 2036, 2006, 0135, 2010

Facility: Century Aluminum of KY

B. Applicable Regulations and Emission Limits

Regulation(s): 40 CFR Part 63, Subpart LL
401 KAR 59:010
401 KAR 51:017

Emission Limit(s): Polycyclic Organic Matter 13.94 lbs/hr POM (VOC)

Monitoring Coke Flow Rate
Requirement(s): Exhaust Gas Flow Rate
Visible Emissions (Qualitative and Method 9)

C. Control Technology

Dry Coke Scrubber (Pitch Fume Scrubber)

Emission Point 28

3.3.1 Monitoring Approach

A. Indicator	Gas Flow Rate	Coke Flow Rate	Visible Emissions
Measurement Approach	Gas flow is continuously measured using Brandt Flow Meter located in the exhaust stack.	The frequency of the rotary vane feeder monitored in hertz by 1771-IFE Analog Input Cards, translated to rotations, and then, knowing the pocket fill, calculated to lbs/hr of flow.	Visible emissions will be observed by a trained observer at least once per day if weather permits. If visible emissions are observed which are indicative of abnormal operation, a full Method 9 will be conducted within 1 hour or whenever weather permits.
B. Indicator Range	40,000-55,000 SCFM	≥ 50 Hz (1.97 tons/hr)	Visible Emissions - Daily < 20% - Method 9 Excursions trigger inspection, corrective action, and reporting.
C. Performance Criteria	The pressure transmitters have a minimum accuracy of $\pm 0.5\%$	$\pm 0.5\%$	Observations are performed at the stack exhaust while the unit is operating.
Data Representativeness			
Verification of Operational Status	This system flow is displayed on the operator's control screen. The system continuously monitors the air flow and alarms the operator if it falls below the minimum.	The system has flow sensors at the rotary airlock discharge, the distribution feeders that distribute coke collection system duct work and venture reactor. If the airlock is not operating, the distribution feeders are not operating, or the reactor is not receiving flow, then an alarm displays on the operators screen requiring operator intervention.	NA
QA/QC Practices and Criteria	The flow meter will be calibrated annually to a NIST traceable standard.	Verification that actual flow exiting the feeder matches expected flow once per month. Inspection and adjustment of vane blade clearance to manf. specs. once per quarter.	Observers recertified to M9 every 6 months
Monitoring Frequency	Continuously	Continuously	Daily qualitative, M9 quantitative if visible emissions are observed. M9 minimum once per week
Data Collection Procedures	15 minute instantaneous readings are computed and recorded. The PLC then calculates and records 2-hr average using the 15-minute readings.	15 minute instantaneous readings are recorded. The PLC then calculates and records 2-hr average using the 15-minute readings.	Qualitative recorded by operator Quantitative documented on SSOP 810-011FA Both kept for at least five years
Averaging Period	2 hours	2 hours	6 minute

3.3.2 Monitoring Approach Justification

A. Background

The pollutant specific emissions control unit for the paste production plant (Green Carbon) is specifically identified in 40 CFR 63.843(b)(1-2) as a dry coke scrubber with a emission capture system that is installed and operated to meet the minimum exhaust rates in identified in Chapters 3 and 5 of *Industrial Ventilation: A Handbook of Recommended Practices*, 22nd edition, published by the ACGIH. Century has operated such a device since 1999 that captures the emissions from the sources generating POM emission in the paste production process.

The non-process pitch storage tanks at Century are considered existing sources because they have not been installed, reconstructed, or modified since the standard was enacted and include no emission capture and control system is installed on those sources.

When the paste production plant operation is shut down (weekends and other times as applicable), the emitting sources are emptied of pitch (raw material emitting target pollutant.)

40 CFR Subpart LL – Primary Aluminum MACT (PMACT) specifies in 40 CFR 63.848(f)(2) that devices shall be installed for the measurement of air flow and coke flow for dry coke scrubbers. Under the provisions of 40 CFR 63.848(l), Century proposes to monitor alternative operating parameters for coke flow. Justification for the monitoring of these alternate parameters is described in 3.3.1, 3.3.2(B) and 3.3.2(C) and includes the following as prescribed in 40 CFR 63.2 under the definition of *monitoring*:

- Indicators of performance (3.3.2 (B) - Rationale for Selection of Performance Indicators)
- Measurement techniques (3.3.2 (C) - Rationale for Selection of Indicator Range)
- Monitoring frequency (Table 3.3.1 shows the monitoring frequency)
- Averaging time (Table 3.3.1 shows the averaging time)

B. Rationale for Selection of Performance Indicators

Gas Flow

Gas flow was selected because it is a required monitoring parameter established by 40 CFR 63.848(f)(2). The exhaust gas flow is continuously measured by a Brandt flow meter in SCFM and recorded to the PLC once every 15 minutes.

Coke Flow

Coke flow it is a required monitoring parameter established by 40 CFR 63.848(f)(2). Because the design of the scrubber is not equipped to directly measure coke flow, was not designed to control coke flow by such a device, and because of the physical arrangement of the equipment will not allow for the installation of such a device, Century has chosen to monitor flow by an alternate method as described below.

The scrubber is designed by the manufacturer for coke flow to be controlled manually by a rotary airlock variable speed controller. The feed rate set point was originally set and calibrated by the manufacturer at start-up in accordance with the system mass balance.

By measuring the set-point of the rotary airlock drive frequency (Hertz) we can determine the number of feeder revolutions at that drive frequency. The equipment manufacturer identified the amount of material transferred during one revolution. By multiplying the number of revolutions by the amount of material per revolution, we can then determine the amount of material being transferred.

To verify that the material being transferred meets the design criteria, once per month Century will compare the expected amount of material discharged in a given number of revolutions to the actual amount of material transferred by doing the following:

- stopping the infeeding coke supply to the storage tank,
- recording the beginning tank weight,
- running the feeder for a known number of revolutions,
- recording the ending tank weight,
- calculating the difference in beginning and ending weight, and
- comparing the difference to the expected amount of flow.

See Appendix C for details of the calculation and correlation between hertz and tons/hr.

To ensure that the coke feed system is not plugged, the coke distribution system is monitored by the control system as follows:

- verification that the rotary airlock discharging material from the coke silo is operating,
- flow sensors located at each of the five distribution points for coke flow out of the distribution conveyor,

If the airlock is not operating or any one of the flow sensors shows low flow, then an alarm displays on the operators screen requiring operator inspection, intervention, and potentially reporting.

Also, to ensure that the rotary vane feeder is performing as designed, routine preventative inspection and maintenance are performed. In particular, the gap between the adjustable vane blades and the housing is measured and compared to original design tolerances. Adjustments are made to the vane blades as necessary to ensure the gap is within tolerance.

Century believes that by monitoring these parameters and performing the necessary maintenance, that coke flow can be accurately and reliably measured to ensure continuous compliance.

Visible Emissions

Visible emissions was selected because it is a required monitoring parameter established by 40 CFR 63.848(g). An increase in opacity or changes in VE observations indicate process changes, changes in baghouse efficiency, or leaks.

C. Rationale for Selection of Indicator Range

The indicator range for gas flow was established based upon gas flows recorded every 15 minutes from 2008-2009. It is based upon the scrubber gas flow of 40,000-55,000 SCFM recorded when the scrubber was operating and takes into account seasonal variation due to temperature. An excursion is defined as any period during which the 2-hr average gas flow is outside of the established range.

The indicator range for coke flow was established as the setpoint of the feeder for from 2008-2009. It is based upon the current rotary vane feeder drive frequency of 50 Hz (1.97 tons/hr). This is established as a minimum alumina flow. Coke flow does not require an upper limit because more coke flow will not reduce the efficiency of the adsorption of POM in the gas stream. An excursion is defined as any period during which the 2-hr average drive frequency drops is below 50 Hz.

Stack emissions will be observed by a trained observer on a daily basis for any evidence of visible emissions indicating abnormal operation. If visible emissions are observed which are indicative of abnormal operation, a full Method 9 will be conducted whenever weather permits and corrective action will be initiated within one hour per 40 CFR 63.848(h), beginning with an evaluation of the occurrence to determine the action required to correct the situation. All excursions will be documented and reported.

An excursion is defined as any Method 9 opacity reading $\geq 20\%$ or visible emissions with less than 20% opacity that are found to be associated with abnormal operation.

In addition to these indicators, Century will record the status coke flow alarms to the PLC continuously (every 15 mins).

When an excursion occurs, corrective action will be initiated within one hour per 40 CFR 63.848(h), beginning with an evaluation of the occurrence to determine the action required to correct the situation. All excursions will be documented and reported.

3.4 Potlines 1-4

A. Regulated Source(s)

Description: Potlines 1-4 (Stack and Roof Monitors)
Emission Source Group: 42
Equip Designation(s): 4200, 4220, 4230, 4240, 2092, 2093, 2094, 2095
Facility: Century Aluminum of KY

B. Applicable Regulations and Emission Limits

Regulation(s): 40 CFR Part 63, Subpart LL
401 KAR 59:010
401 KAR 51:017
Emission Limit(s): Total Fluoride (Gaseous+Particulate) 2.5 lbs/ton of Al produced
Monitoring Exhaust Gas Flow Rate
Requirement(s): Water Flow Rate
Secondary Current and Voltage
Visible Emissions (Qualitative and Method 9)

C. Control Technology

Multiclone, Electrostatic Precipitator & Wet Scrubber Control System

Emission Point 84 – (Stack)
Emission Point 85 – (Potline #1 Roof Monitor)
Emission Point 86 – (Potline #2 Roof Monitor)
Emission Point 87 – (Potline #3 Roof Monitor)
Emission Point 88 – (Potline #4 Roof Monitor)

3.4.1 Monitoring Approach

A. Indicator	Gas Flow Rate	Water Flow Rate	Secondary Current & Voltage	Visible Emissions	Potshield Maintenance
Measurement Approach	The amperage of the fan motors monitored by 1771-IFE Analog Input Cards. Number of fans in operation	Water flow into each individual scrubber via flow meter	ESP secondary voltage and current are measured for each field. The secondary voltage is measured using a voltmeter and the secondary current is measured using an ammeter.	Visible emissions will be observed by a trained observer at least once per day if weather permits. If visible emissions are observed which are indicative of abnormal operation, a full Method 9 will be conducted within 1 hour or whenever weather permits.	Shields are informally inspected daily by operators as part of the SSOP for anode changing. Shields are formally inspected weekly.
B. Indicator Range	170-210 amps 3 Fans Operating per side (6 total)	Water Flow – See Table 3.4.2.(C)-1 on Page 32 for indicator ranges	Secondary Current 80-156 mA Secondary Voltage 20-29 mV	Visible Emissions - Daily < 20% - Method 9 Excursions trigger inspection, corrective action, and reporting.	Informal daily inspections will result in realignment of shields as necessary. Formal weekly inspection will identify damage creating gaps.
C. Performance Criteria Data Representativeness	Fan Amps $\pm 0.5\%$ # Fans Operating – 100%	Flow Meters $\pm 1.0\%$	The voltage and current are measured using the instrumentation the manufacturer provided with the ESP.	Observations are performed at the stack exhaust while the unit is operating.	NA
Verification of Operational Status	This failure or operation out of indicator range is displayed on the operator's control screen. The system continuously monitors the fan amperage and alarms the operator if it falls below the minimum or a fan shuts down.	This failure or operation out of indicator range is displayed on the operator's control screen. The system continuously monitors the pump amperage and alarms the operator if it falls below the minimum or a pump shuts down. Verify hand-held meter working prior to use.	Confirm the meters read zero when the unit is not operating.	NA	NA
QA/QC Practices and Criteria	The measurement device is calibrated at least annually to a NIST traceable standard.	The measurement devices are calibrated at least annually to a NIST traceable standard.	The measurement devices are calibrated at least annually to a NIST traceable standard.	Observers recertified to M9 every 6 months	Operators are trained to the SSOP and alignment practices. Personnel performing weekly inspections are trained to identify shields that need replacement.
Monitoring Frequency	Continuously	Continuously	The secondary voltage and current are measured once every 15 minutes to calculate the total power input once every 15 minutes.	Daily qualitative, M9 quantitative if visible emissions are observed. M9 minimum once per week	Informal – Daily Formal - Weekly
Data Collection Procedures	15 minute instantaneous readings are computed and recorded for fan amps. The PLC then calculates and records 2-hr average using the 15-minute readings.	15 minute instantaneous readings are recorded for each scrubber. The PLC then calculates and records 2-hr average using the 15-minute readings.	15 minute instantaneous readings are recorded. The PLC then calculates and records 2-hr average using the 15-minute readings.	Qualitative recorded by operator Quantitative documented on SSOP 810-011FA Both kept for at least five years	Informal – NA Formal – Documented electronically with corrective action tracked to completion
Averaging Period	2 hours	2 hours	2 hours	6 minute	NA

3.4.2 Monitoring Approach Justification

A. Background

The pollutant specific emissions control unit for Potlines 1-4 are a control series consisting of multiclones (particulate), electrostatic precipitators (particulate), and wet scrubbers (fluoride control.) Since the construction of the plant the systems have evolved into the controls that currently exist. Below is a brief history of where the controls systems started and how they evolved.

The original pollution control systems at the facility are the multiple-cyclones and the wet scrubbers. This system consisted of one set of multiple-cyclones per potline followed by the main exhaust fans and then followed by the wet scrubbers. The system was divided into two halves (one half for lines 1 & 2 and the other half for lines 3 & 4). There were four fans per side, but the discharge from all eight fans went into a common header that then went to the twelve scrubbers. Originally it required the operation of all eight fans to properly exhaust the pot gases as there was no common ducting until the fan discharge. The original fan design was to exhaust 240,000 cfm each. In the early 1990s, Century replaced the main exhaust fans with a high efficiency design so that the same exhaust air flow could be accomplished with 3 fans on a side (as we are today) instead of 4. Currently during normal operation, gas from the potlines passes through the multiple-cyclones, ESPs, and fans into a common header, then into the individual wet scrubbers. From the twelve scrubbers, the emissions enter into a plenum and then the main stack.

The multiple-cyclones today are the same as originally installed in 1969 and are the original particulate control device. They are designed to control larger micron particulate and have no moving parts. The East multiclones control Potlines 1 and 2 and the West multiclones Potline 3 and 4. They cannot be ducted such that one set of multiclones can receive all gas flow. In about 1978, the scrubber system was modified to add electrostatic precipitators to reduce the particulate emissions prior to the twelve scrubbers. To accomplish this, the ductwork from the discharge of the multiple-cyclones was combined and directed to a bank of ESPs and then returned to the same fans. At this point, Century could then operate four fans from each side that simultaneously pulled exhaust from two potlines.

Today, there are eight 3-field ESP's controlling Potlines 1-4. The emissions from Potlines 1 and 2 are controlled by the four East ESPs and Potline 3 and 4 are controlled by the four West ESPs. They are not physically ducted such that the East can also control emissions from the West or vice versa. Each set of four ESPs are designed to control PM emissions from two Potlines (four 3-field ESPs). The Potlines are the type specified in the Primary Aluminum MACT as Center Work Pre-Bake 1 (CWPB1).

The twelve wet scrubbers were installed in 1969 by the original facility owner. They were designed to scrub fluorides by Universal Oil Products Company (UOP) and Kaiser Engineering, Inc. The water to feed the twelve scrubbers was supplied by five re-circulating pumps (not all operated at one time.) Regeneration of the re-circulated water was accomplished by a side stream loop capable of about 10% of the re-circulation volume through a neutralizer and clarifier and then returned to a common sump. The solids from the clarifier were sent to a tailings pond.

The wet scrubbers originally had a ping-pong ball type scrubbing media installed, but due to the air velocity distribution they were carried out of the scrubber and had no consistent bed height. This media was finally placed in baskets to contain them, provide pressure drop, and provide a consistent bed depth. This was the case through the mid-1970s until new regulations required more particulate control. About 1978, the design for the scrubbers was altered in an attempt to gain pressure drop so that installation of electrostatic precipitators could be accomplished. The media chosen was tellerettes, but they proved to be unmanageable as particulate made them into a solid mess and had to be cut out. From this, it was found that using a mist eliminator as a bed material as well as a mist eliminator gave satisfactory results.

Sometime in the mid-1980s a project was initiated to increase the scrubbing efficiency. It was found that by recirculating a lime slurry instead of water the scrubbing efficiency would increase. This provided additional calcium in the system to be combined with the fluorides. Over the years upgrades have been made to the wet scrubber nozzle design and pattern as the system went to slurry scrubbing and having reduced trash in the re-circulating water. The original "nozzle" was an open pipe that shot water onto a

Plexiglas plate and today has a pig-tail nozzle capable of specific droplet size. Normal operation for these includes routine cleaning wherein one scrubber tower is placed in bypass to be cleaned to ensure proper water dispersion. All towers are cleaned weekly. An excursion would be present if more than one scrubber tower is taken offline at one time.

40 CFR Subpart LL – Primary Aluminum MACT (PMACT) specifies in 40 CFR 63.848(f)(3) that devices shall be installed for the measurement of air flow and water flow for wet scrubbers. Century does not believe this is feasible or practical given the age of the facility and design of the components. Under the provisions of 40 CFR 63.848(l), Century proposes to monitor alternative operating parameters. Justification for the monitoring of these alternate parameters is described in 3.4.1, 3.4.2(B) and 3.4.2(C) and includes the following as prescribed in 40 CFR 63.2 under the definition of *monitoring*:

- Indicators of performance (3.4.2 (B) - Rationale for Selection of Performance Indicators)
- Measurement techniques (3.4.2 (C) - Rationale for Selection of Indicator Range)
- Monitoring frequency (Table 3.4.1 shows the monitoring frequency)
- Averaging time (Table 3.4.1 shows the averaging time)

B. Rationale for Selection of Performance Indicators

Gas Flow

Gas flow it is a required monitoring parameter established by 40 CFR 63.848(f)(3). The original design of the scrubber did not include a device to measure gas flow and the gas flow through the system is not controlled by direct measurement. Additionally, measuring air flow into and exiting individual scrubbers is not feasible. US EPA Method 2 - Determination of Stack Gas Velocity And Volumetric Flow Rate (Type S Pitot Tube) outlines the following as criteria to obtain a valid air flow measurement.

Excerpt from US EPA Method 2

10.1.2.2 The cross-sectional area of the calibration duct must be constant over a distance of 10 or more duct diameters. For a rectangular cross section, use an equivalent diameter, calculated according to Equation 2-2 (see Section 12.3), to determine the number of duct diameters. To ensure the presence of stable, fully developed flow patterns at the calibration site, or "test section," the site must be located at least eight diameters downstream and two diameters upstream from the nearest disturbances.

NOTE: The eight- and two-diameter criteria are not absolute; other test section locations may be used (subject to approval of the Administrator), provided that the flow at the test site has been demonstrated to be or found stable and parallel to the duct axis.

The inlets to each scrubber are rectangular ducts that are angled slightly downward from horizontal and run approximately 8' long x 9.5' wide x 7' tall. The ducts exiting from scrubbers #2 through #11 are vertical straight runs of pipe that range from approximately 6' to 12'. The #1 and #12 scrubbers have a

run of duct the runs angled slightly upward from horizontal for approximately 12 feet. The diameter of these exit ducts is 8.5'. Neither the inlet, nor the exit ductwork is configured such that it would be possible to perform an air flow measurement as required by Method 2. Therefore direct continuous measurement of air flow is infeasible and impractical.

Additionally, because the scrubber is a wet system, any device installed in the stack could not accurately measure gas flow because it would routinely become fouled by the water/particulate emissions from the wet scrubbers. Century has chosen use of an alternate method as described below and indicators of performance for gas flow.

Number of Fans in Operation

Gas flow through the system is ensured by eight induced draft fans. As stated above, the system design devotes four fans to two potlines. To ensure the proper amount of duct pressure at each individual potline reduction cell, at least three of the four fans must be operating within the indicator range specified in 3.4.1. Century will operate such that three fans per side (six total) are running at all times. This allows Century to start one fan and then shutdown an operating fan for maintenance and still maintain the necessary compliance.

The fans are equipped with alarms that will notify the operator if a shutdown occurs.

Fan Amps

The eight induced draft fans used at the wet scrubber system have been operating for almost 40 years. Over that period of time (and especially in the last 20 years) Century has performed numerous performance tests and has gained an understanding of how the fans amps affect the gas flow through the wet scrubber system.

The roof emissions from the potlines are in essence uncontrolled emissions that are greatly affected by the ability of the wet scrubber system to remove the pollutant from the reduction cell. Fan amps affect gas flow from the reduction cell and likewise affect the roof monitor emissions. Century is therefore motivated to ensure that the fan amps are operating within a specified range and has proven this measurement to be effective, valid, and reliable through historical compliance for total fluoride emission limits on Potlines 1-4.

Performance testing conducted in May and November 2010 confirmed the indicator range for fan amps assures the control equipment is operating in compliance with the permit limit (and MACT limit) as shown in Chart 1 and Chart 2. Total fluoride emissions for these two performance tests are shown in the table below individually and combined with the annual averages for the roof monitor emissions from each potline. Since the roof monitor emissions are essentially uncontrolled fugitive emissions, compliance with this limit would not be possible if the air flow being exhausted from the individual reduction cells were not adequate. The sum of the emissions shown below is less than 2.50 lbs of total fluoride/ton of aluminum and therefore in compliance with the MACT emission limit.

Date	Stack Emission Rate (lbs TF/ton of Al)	Roof Monitor Annual Averages (lbs TF/ton of Al)			
		Potline 1	Potline 2	Potline 3	Potline 4
05/13/10	0.760	0.996	1.060	1.063	0.854
11/18/10	0.604	0.996	1.060	1.063	0.854

Total Fluoride Emissions - Stack + Roof (lbs TF/ton of Al)			
Potline 1	Potline 2	Potline 3	Potline 4
1.756	1.820	1.823	1.614
1.600	1.664	1.667	1.458

MACT Total Fluoride Limit 2.5 lbs TF/ton Al

Century believes that monitoring the number of fans in operation and fan amps are an effective, valid, and reliable indicator of gas flow through the system to proper operation and effectiveness of the control equipment because of our experience operating the fans over the past 20+ years and the completion of numerous performance tests showing compliance at the stack and roof monitor.

Water Flow

Water flow it is a required monitoring parameter established by 40 CFR 63.848(f)(2). Flow is provided by the operation of three 10,000 gpm capacity Allen-Sherman Hoff water pumps into a main distribution header, which then supplies flow to each individual scrubber. Because of the system design, controlling the balance of water flow to individual scrubbers is not feasible. Century previously pursued an alternative monitoring plan for flow because of the system configuration and need for 12 different flow monitoring locations. Because EPA expressed concerns with the alternative, Century will purchase and install devices to continuously measure water flow into each of the twelve scrubbers. Thus, an alternative monitoring approach is no longer proposed.

Water Flow

Century will proceed to purchase and install devices to monitors water flowing through the system at the header to each of the scrubbers using a calibrated ultrasonic flow meter on the vertical piping, just prior to the piping entering the scrubber. Based upon data obtained from weekly flow measurements since October 2007, Century has determined that distribution of flow is not uniform across all scrubbers, but is consistent to individual scrubbers. Based upon the flow data, Century inspects the scrubber and makes corrective actions as needed. However, as explained above, Century cannot control the flow rates to individual scrubbers.

Weekly Maintenance

Based upon Century's experience operating the scrubbers over the past 40 years, Century has initiated a cleaning schedule for the scrubber towers that results in each of the 12 scrubber towers being cleaned and inspected once each week. The following items are performed during each inspection and cleaning:

- Clean (using high pressure water), inspect, and flip mist eliminators
- Clean (using high pressure water) and inspect bottoms and grating
- Clean (using high pressure water) and inspect all nozzles
- Visually verify proper nozzle spray pattern
- Clean (using high pressure water) and inspect all support beams

Weekly cleaning ensures proper and consistent distribution of water to maximize adsorption of the target pollutant. This requires one scrubber to be taken offline for approximately 3 hours.

Although Century will now install twelve flow monitors, Century believes the prior approach of monitoring the number of pumps in operation, pump amperage, and weekly flow measurements were a reliable indicator of water flow to ensure continuous compliance as had been demonstrated during the performance tests conduct in May and November 2010. The results of that testing are shown below and indicate that scrubbing of fluoride from the gas stream is adequate to ensure compliance with MACT emission limits.

Date	Stack Emission Rate (lbs TF/ton of Al)	Roof Monitor Annual Averages (lbs TF/ton of Al)			
		Potline 1	Potline 2	Potline 3	Potline 4
05/13/10	0.760	0.996	1.060	1.063	0.854
11/18/10	0.604	0.996	1.060	1.063	0.854

Total Fluoride Emissions - Stack + Roof (lbs TF/ton of Al)			
Potline 1	Potline 2	Potline 3	Potline 4
1.756	1.820	1.823	1.614
1.600	1.664	1.667	1.458

MACT Total Fluoride Limit **2.5 lbs TF/ton Al**

Secondary Current and Voltage

ESP secondary current and voltage are a required monitoring parameter established by 40 CFR 63.848(f)(4).

In an ESP, electric fields are established by applying a direct-current voltage across a pair of electrodes, a discharge electrode and a collection electrode. Particulate matter suspended in the gas stream is electrically charged by passing through the electric field around each discharge electrode (the negatively charged electrode). The negatively charged particles then migrate toward the positively charged collection electrodes. The particulate matter is separated from the gas stream by retention on the collection electrode. Particulate is removed from the collection plates by shaking or rapping the plates.

The secondary voltage drops when a malfunction, such as grounded electrodes, occurs in the ESP. When the secondary voltage drops, less particulate is charged and collected. Also, the secondary voltage can remain high but fail to perform its function if the collection plates are not cleaned, or rapped, appropriately. If the collection plates are not cleaned, the current drops. Thus monitoring the secondary voltage and current will provide a reasonable assurance that the ESP is functioning properly.

Visible Emissions

Visible emissions was selected because it is a required monitoring parameter established by 40 CFR 63.848(g). An increase in opacity or changes in VE observations indicate process changes, changes in baghouse efficiency, or leaks.

Potshield Maintenance, Stability, and Removal

To ensure the shields are in adequate alignment and condition to obtain proper collection efficiency of pot gases, Century performs two types of inspections and maintenance 1) a daily informal inspection and alignment of shields by the operators and supervisors as they change perform their normal work on the reduction cells and 2) a weekly formal inspection of shields to verify that the operators are performing their job adequately, to identify any shields that are damaged to a point that excess gap is created, and to verify that previously identified damage has been corrected. This data is documented electronically and

the corrective action is tracked electronically to completion. Records of these inspections are maintained for at least five years.

Occasionally a reduction cell becomes chemically unstable. When this happens, the cell gets hot and needs to be cooled rapidly. To do this, the shields are removed from the pot. Returning a chemically unbalanced pot to a stable condition is preferred over removing the pot from service due to the emissions generated during the restart of a previously inactive pot. It takes less time and results in less overall emissions to re-stabilize the upset pot than to remove a pot from service and restart. To reduce excess emissions during pot upset conditions, Century will keep sick pots covered unless absolutely necessary for cooling. Should a sick pot require uncovering, it may not remain uncovered for more than 24 hours. The date and time that the sick pot is uncovered and recovered is documented electronically. An unshielded sick pot is defined as a condition when shields are removed on a production unit (Pot) as a result of its unsettled condition and is not a part of startup or the normal work practice.

There are two primary activities involved with producing aluminum in the potlines 1) anode change and 2) tapping. During anode change shields must be removed to access and change the anodes. To minimize emissions during this process, Century limits the number of shields that can be removed at the same time to no more than three shields removed from no more than four pots at the same time in one room. During tapping end doors must be opening in order to prepare the pot for the tapping process and to perform tapping. To minimize emissions during the process Century limits the number of end doors that can be opened at the same time to no more than three in one room. Ancillary activities may also require the removal of shields or opening of end doors. The same guidelines apply to those ancillary activities.

C. Rationale for Selection of Indicator Range

Gas Flow

Number of Fans in Operation

The indicator range for number of fans in operation is on or off. Three fans on each side must be operating at all times. An excursion is defined as any time less than three fans on each side (six total) are operating. All excursions will be documented and reported using the Kentucky Department for Environmental Protection Electronic Submittals web site.

Fan Amps

The indicator range for fan amps of 170-210 amps for each fan in operation was established based upon fan amps recorded every 15 minutes from performance tests and historical fan amps recorded during seasonal variation. The amperage of the fan motors is monitored by 1771-IFE Analog Input Cards and instantaneously recorded to a PLC every 15-minutes. The PLC calculates and records the 2-hr average of the instantaneous readings taken the previous 2 hours and records that reading to the PLC. The instantaneous and 2-hour average is displayed on the operators control screen.

Performance testing conducted in May and November 2010 confirmed the indicator range for fan amps assures the control equipment is operating in compliance with the permit limit (and MACT limit) as shown in Chart 1 and Chart 2. Total fluoride emissions for these two performance tests are shown in the table below individually and combined with the annual averages for the roof monitor emissions from each potline. The sum of the emissions shown below is less than 2.50 lbs of total fluoride/ton of aluminum and therefore in compliance with the MACT emission limit.

Date	Stack Emission Rate (lbs TF/ton of Al)	Roof Monitor Annual Averages (lbs TF/ton of Al)			
		Potline 1	Potline 2	Potline 3	Potline 4
05/13/10	0.760	0.996	1.060	1.063	0.854
11/18/10	0.604	0.996	1.060	1.063	0.854

Total Fluoride Emissions - Stack + Roof (lbs TF/ton of Al)			
Potline 1	Potline 2	Potline 3	Potline 4
1.756	1.820	1.823	1.614
1.600	1.664	1.667	1.458

MACT Total Fluoride Limit **2.5 lbs TF/ton Al**

Chart 1: May 2010 Wet Scrubber Stack Test Fan Amps vs. Gas Flow – 3 Fans Operating Per Side

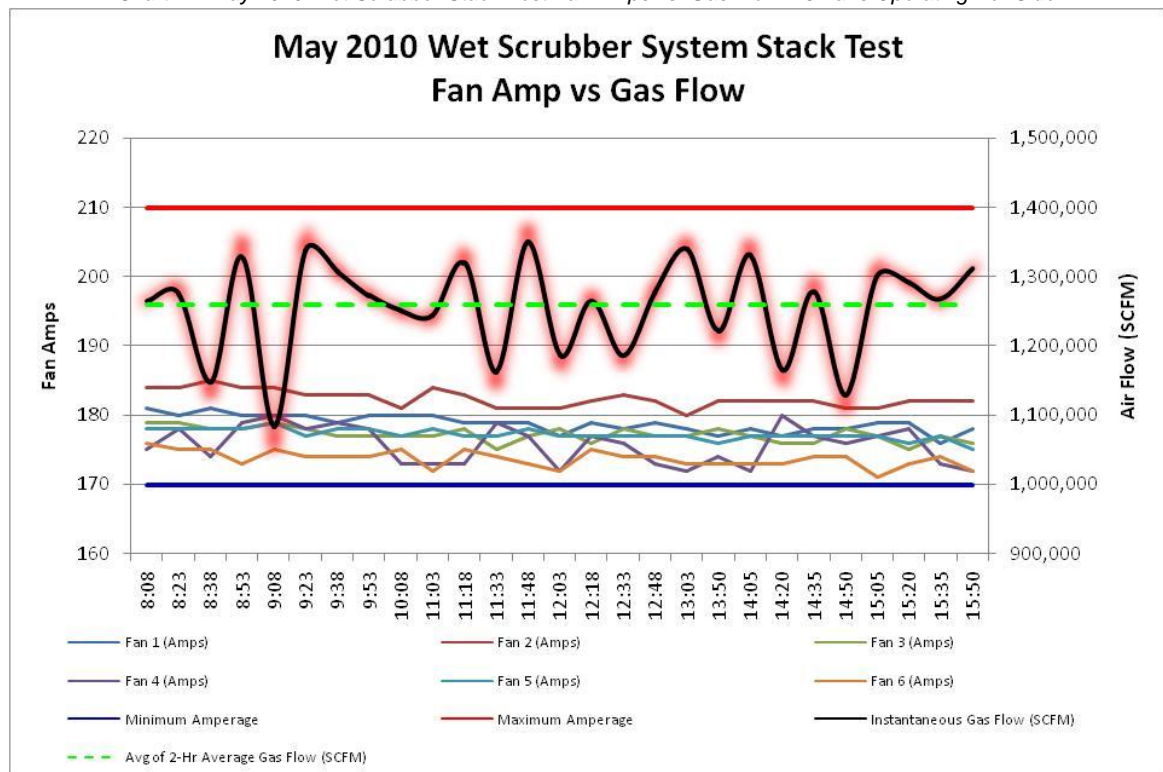
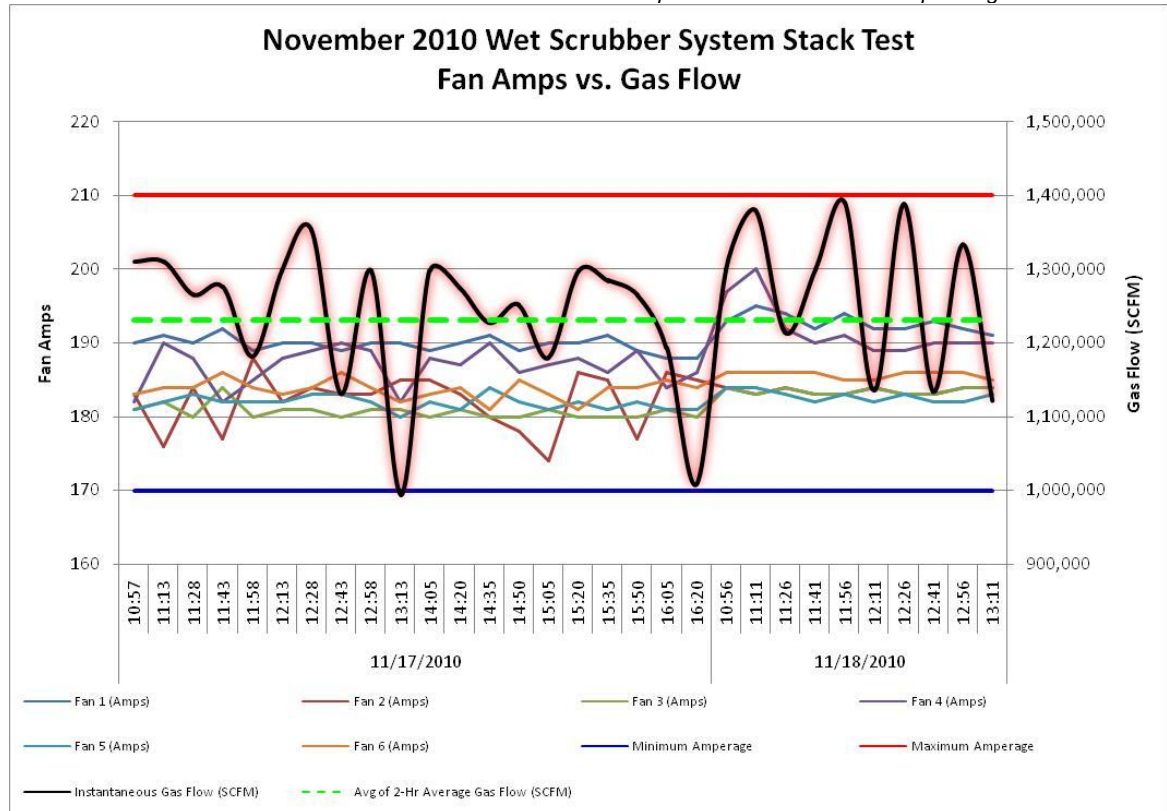


Chart 2: November 2010 Wet Scrubber Stack Test Fan Amps vs. Gas Flow – 3 Fans Operating Per Side



Fan amps can be affected by air temperature this can affect the air flow from the reduction cell through the wet scrubber system. When the air is colder and more dense the fans amps increase when pulling the same volume of air as they would during the summer months.

Century believes that this fan amp range is a reliable, valid, and accurate indicator of gas flow and will ensure continuous compliance by maintaining adequate draft on the reduction cells without over loading the multiclones, ESPs, and wet scrubbers.

An excursion is defined as any period during which the 2-hr average fan amps are outside of the established range. When an excursion occurs, corrective action will be initiated within one hour per 40 CFR 63.848(h), beginning with an evaluation of the occurrence to determine the action required to correct the situation. All excursions will be documented and reported using the Kentucky Department for Environmental Protection Electronic Submittals web site.

Water Flow

Water Flow

The indicator range for water flow was established based upon flow data that has been collected from October 2007 to present. The range was based upon the average water flow being supplied to each individual scrubber ± 2 standard deviations. Century will record a flow reading to the PLC once every 15 minutes. The basis for compliance will be the 2-hr average of these 15 minute instantaneous readings for each of the twelve flow meters. Water flows outside this range indicate a problem with the distribution system inside the scrubbers and require inspection, corrective action, and possibly reporting.

Table 3.4.2.(C)-2: Individual Scrubber Weekly Water Flows (Oct-2007 through Jan-2011)

Scrubber	Avg (gpm)	Standard Deviation (gpm)	Max (gpm)	Min (gpm)	Range (gpm)	Monitoring Ranges	
						Max Slurry Flow (gpm)	Min Slurry Flow (gpm)
1	2,544	160	2,960	1,845	1,115	2,865	2,223
2	2,338	236	2,815	1,620	1,195	2,810	1,866
3	2,321	249	2,775	1,446	1,329	2,819	1,823
4	2,469	234	2,820	1,085	1,735	2,938	2,001
5	2,547	215	2,960	1,419	1,541	2,977	2,117
6	2,690	136	3,117	2,215	902	2,961	2,419
7	2,807	285	3,720	2,070	1,650	3,377	2,238
8	2,705	154	3,217	1,970	1,247	3,014	2,396
9	2,517	254	3,015	1,470	1,545	3,026	2,009
10	2,226	257	2,618	1,365	1,253	2,739	1,712
11	2,109	291	2,830	1,150	1,680	2,691	1,528
12	2,330	159	2,737	1,680	1,057	2,648	2,013

An excursion is defined as any period during which the water flow is outside of the established range for an individual scrubber. When an excursion occurs, corrective action will be initiated within one hour per 40 CFR 63.848(h), beginning with an evaluation of the occurrence to determine the action required to correct the situation. All excursions will be documented and reported using the Kentucky Department for Environmental Protection Electronic Submittals web site.

Secondary Current & Voltage

The indicator range was selected based upon the average secondary current and voltage recorded every 15 minutes during the 2010 performance test \pm 2 standard deviations. An excursion is defined as any period here the 2-hr average of either of the parameters is outside the established range. When an excursion occurs, corrective action will be initiated within one hour per 40 CFR 63.848(h), beginning with an evaluation of the occurrence to determine the action required to correct the situation. All excursions will be documented and reported using the Kentucky Department for Environmental Protection Electronic Submittals web site.

The opacity normally is below 15 percent. The opacities were measured using EPA Method 9 and correlated by day to the secondary voltage and current data. EPA Method 9 is used for compliance monitoring. In addition, compliance with the scrubbers 20 percent opacity limit would not necessarily indicate compliance with the PM limit, and continuous opacity monitoring is not required of this source.

The indicator range for the wet scrubber system will be reevaluated based on the monitoring data from the next performance test and adjusted as necessary to ensure continuous compliance.

Visible Emissions

Stack emissions will be observed by a trained observer on a daily basis for any evidence of visible emissions indicating abnormal operation. If visible emissions are observed which are indicative of abnormal operation, a full Method 9 will be conducted whenever weather permits and corrective action will be initiated within one hour per 40 CFR 63.848(h), beginning with an evaluation of the occurrence to determine the action required to correct the situation. An excursion is defined as any Method 9 opacity reading \geq 20% or visible emissions with less than 20% opacity that are found to be associated with abnormal operation. All excursions will be documented and reported using the Kentucky Department for Environmental Protection Electronic Submittals web site.

Potshield Maintenance, Stability, and Removal

The combination of informal and formal shield inspections provides assurance on a daily basis that abnormal conditions are identified and addressed, as appropriate. Given the large number of cells per potline (112) with each cell containing 20 shields, it is not practical to conduct formal inspections on a daily basis. Informal inspections by operators nevertheless provide daily review of shield alignment and the formal inspections provide oversight review of those activities. The number of shields and end doors that can be either removed or opened is based upon the minimum number necessary to complete the tasks.

When an excursion occurs, corrective action will be initiated within one hour per 40 CFR 63.848(h), beginning with an evaluation of the occurrence to determine the action required to correct the situation. All excursions will be documented and reported using the Kentucky Department for Environmental Protection Electronic Submittals web site.

All indicator ranges for control devices will be reestablished during the next performance test.

4.0 Corrective Actions

- 4.1 Corrective actions are instituted within one (1) hour if any of the following are detected:
- A monitoring device for a primary control device measures an operating parameter outside the established limit(s) or 2-hr averages as defined in Section 3.0, or
 - Any visible emissions from either of the two dry alumina scrubbers or dry coke scrubber, or
 - Visible emissions from the wet scrubber system exhaust stack in excess of 20%, or
 - A problem, malfunction, etc. during the routine inspection of a control device.
- 4.2 Corrective actions may be documented in the operator's logbook or as reported through KY Department for Environmental Protection Electronic Submittals (<https://dep.gateway.ky.gov/eportal/default.aspx>).

If the limit for a given operating parameter associated with monitoring a specific control device is exceeded six times in any semiannual reporting period, the any subsequent exceedance in that reporting period is a violation. No more than one exceedance shall be attributed in any given 24 hour period.

5.0 Accuracy & Calibration

Century performs the necessary calibrations on the devices that continuously monitor the parameters selected. These calibrations are performed on a frequency and by a method recommended by the equipment manufacturer. Century will modify the frequency based upon the results of the calibration, but the frequency will be no less than annually. Calibrations will be traceable to a National Institute of Standards and Technology (NIST) standard if a standard exists for the calibration.

6.0 Record Keeping

- 6.1 Records are maintained as defined in 40 CFR Part 60 and 63 as well as per Century internal procedures.
- 6.2 Records Required Per 40 CFR 63.10
- 6.2.1. Maintain files of all monitoring data and reports for at least five years in a form suitable and readily available for expeditious inspection and review. The most recent two years of data must be kept on site, and the remaining three years may be stored off site.
- 6.2.2. Records are maintained which pertain to:
- The occurrence and duration of process startup, shutdown, and operational malfunction.
 - The occurrence and duration of each malfunction of air pollution control equipment.
 - Maintenance performed on air pollution control equipment.
 - Actions taken during periods of startup, shutdown, and malfunction (SSM) (including malfunction of air pollution control equipment) when such actions are different than procedures outlined in the SSM Plan.
 - Information necessary to demonstrate conformance with the SSM Plan during startup, shutdown, or response to a malfunction (including malfunction of air pollution control equipment).
 - All required measurements needed to demonstrate compliance with relevant standards, including, but not limited to, 15-minute averages of CMS data, raw performance testing measurements, and raw performance evaluation measurements, that support data that the facility is required to report.
 - The results of performance tests, CMS performance evaluations, and opacity and visible emission observations.
 - All measurements as may be necessary to determine the conditions of performance tests and performance evaluations.

- i. The specific identification (i.e., the date and time of commencement and completion) of each period of excess emissions and parameter monitoring exceedances of the affected source (including exceedances that occur during startups, shutdowns, and malfunctions).
- j. Any information demonstrating whether the facility is meeting the requirements for any record keeping or reporting requirements waivers granted.

6.3 Records Required Per 40 CFR 63.850 (additional record keeping requirements)

- 6.3.1. Daily production rate of aluminum.
- 6.3.2. Daily production rate of green anode material placed in the anode bake furnace.
- 6.3.3. A copy of the SSM Plan.
- 6.3.4. Records (checklists, or equivalent) demonstrating and indicating the results of daily visual inspections of the exhaust stack for each control device.
- 6.3.5. Records documenting the corrective actions taken when the limit(s) for an operating parameter [established by this plan] were exceeded or when visible emissions from a control device stack indicating abnormal operation were observed during the required daily inspection.
- 6.3.6. Records documenting the portion of TF that is measured as particulate matter and the portion measured as gaseous when the particulate and gaseous fractions are quantified separately (using approved test methods).

7.0 Revision History

Effective Date	Supersedes Date	Revision(s)
01/2018	02/2011	Changed pages 16 and 30 to "...no more than four pots in any one room"
02/2011	06/2001	Complete revision to address Region IV NOV and new air permit revision.
06/2001	09/1999	Changed pages i, ii, 3, 6, 14, 15
09/1999	NA	Initial Issue