

Major Modification Permit



R14-0015M

This permit is issued in accordance with the West Virginia Air Pollution Control Act (West Virginia Code §§22-5-1 et seq.) and 45 C.S.R. 13 – Permits for Construction, Modification, Relocation and Operation of Stationary Sources of Air Pollutants, Notification Requirements, Temporary Permits, General Permits and Procedures for Evaluation. The permittee identified at the above-referenced facility is authorized to construct the stationary sources of air pollutants identified herein in accordance with all terms and conditions of this permit.

Issued to:
Knauf Insulation, Inc.
Inwood Facility
003-00012

William F. Durham
Director

Issued: DRAFT

This permit will supercede and replace Permit R14-0015L.

Facility Location: 4812 Tabler Station Road
Inwood, Berkeley County, West Virginia 25428
Mailing Address: Same as Above
Facility Description: Wool Fiberglass Manufacturing Facility
NAICS Codes: 327993
UTM Coordinates: 756.55 km Easting • 4,365.50 km Northing • Zone 17
Permit Type: Major Modification of a Major Source
Description of Change: This action is for replacing the electric arc glass-melting furnace with gas oxygen fueled furnace and associated changes to the line to account for the increase in melting capacity for Line 2 which will be restarted to resume operations.

Any person whose interest may be affected, including, but not necessarily limited to, the applicant and any person who participated in the public comment process, by a permit issued, modified or denied by the Secretary may appeal such action of the Secretary to the Air Quality Board pursuant to article one [§§22B-1-1 et seq.], Chapter 22B of the Code of West Virginia. West Virginia Code §§22-5-14.

As a result of the granting of this permit, the source is subject to 45CSR30. The Title V (45CSR30) application will be due within twelve (12) months after the date of the commencement of the operation or activity (activities) authorized by this permit, unless granted a deferral or exemption by the Director from such filing deadline pursuant to a request from the permittee.

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1.0. Emission Units

Emission Unit ID	Emission Point ID	Emission Unit Description	Year Installed	Design Capacity	Control Device
RAW MATERIAL HANDLING OPERATIONS (GROUP 001)					
ES1A	FP23	Raw Material Storage Bin for Sand	07/25/1998	178.35 Tons	CD1A
ES1B	FP23	Raw Material Storage Bin for Borax	07/25/1998	137.45 tons	CD1B
ES1C	FP23	Raw Material Storage Bin for Borax	07/25/1998	137.45 tons	CD1B
ES1D	FP23	Raw Material Storage Bin for Soda Ash	07/25/1998	137.45 tons	CD1D
ES1E	FP23	Raw Material Storage Bin for Soda Ash	07/25/1998	137.45 tons	CD1D
ES1F	FP23	Raw Material Storage Bin for Aplite	07/25/1998	137.45 tons	CD1F
ES1G	FP23	Raw Material Storage Bin for Lime	07/25/1998	109.5 tons	CD1G
ES1H	FP23	Raw Material Storage Bin for Cullet	07/25/1998	108.50 Tons	CD1I
ES1I	FP23	Raw Material Storage Bin for Cullet	07/25/1998	108.50 Tons	CD1I
ES1J	FP23	Raw Material Storage Bin for Cullet	07/25/1998	137.45 tons	CD1F
ES1L	FP23	Raw Material Storage Bin for Cullet	2017	137.45 tons	CD1F
ES1M	FP23	Raw Material Storage Bin for Cullet	2017	137.45 tons	CD1F
ES1N	FP23	Raw Material Storage Bin for Cullet	2017	137.45 tons	CD1F
ES1K	FP23	Raw Material Storage Bin for Baghouse Dust	07/25/1998	75.00 tons	CD1K
ES22A	FP23	Batch Mixer's Receiving Bin for 2nd Line	2004	8,000 lbs.	CD12A
ES22B	FP23	Mixed Batch Storage Backup Day Bin for 2nd Line	2004	8,000 lbs.	CD22C
ES12B	FP11	Mixed Batch Storage backup day bin for 1st Line	07/25/1998	21.72 tons	CD12D
ES12D	FP11	Mixed Batch Storage Day Bin for 1st Line	07/25/1998	39.0 tons	CD12C
ES12Db	FP11	Mixed Batch Storage Silo for 1st Line	07/25/1998	1.31 tons	CD12Cb
ES11a	EP11a	Line 2 Day Bin A	2017		CD11a
ES11b	EP11b	Line 2 Day Bin B	2017		CD11b
TANKS (Group 001)					
T3	FP11	ECOSE Storage Tank	07/25/1998	4,500 gallons	NA
T4	FP11	ECOSE Storage Tank	07/25/1998	4,500 gallons	NA
T5	FP11	ECOSE Storage Tank	07/25/1998	4,500 gallons	NA
T6	FP11	ECOSE Storage Tank	07/25/1998	4,500 gallons	NA

Emission Unit ID	Emission Point ID	Emission Unit Description	Year Installed	Design Capacity	Control Device
T7A	FP11	Wax Storage Tank	2014	5,000 gallons	NA
T7B	FP11	Wax Storage Tank	2014	5,000gallons	NA
T8	FP11	Ammonia (aqueous) Storage Tank	07/25/1998	6,000 gallons	NA
M1	FP11	Ammonia Sulfate Mix Tank	2015	1,200 gallons	N/A
M2	FP11	Ammonia Sulfate Holding Tank	2015	1,700 gallons	NA
M3	FP11	Spare Holding Tank	2015	1,700 gallons	NA
M4	FP11	Filtered Water Hold Tank	2015	3,200 gallons	NA
M5	FP11	Binder Mix Tank	2015	750 gallons	NA
M6	FP11	Binder Hold Tank	2015	1,700 gallons	NA
MELTING & REFINING LINE 1 (Group 002) [9,000 lbs/hr or 39,420 TPY Production Rate]					
ES12C	EP12	Melter Hood for 1st Line	07/25/1998	4.50 TPH of melted glass	CD12B & CD12Bb
ES12E	EP12 and EP13	Forehearth for 1st Line Natural Gas Fired Brick Holding Process Heater Tank Max Heat Input Rate: 5.5 MMBtu/hr	07/25/1998	9,000 lbs of Glass per hour	CD13A & CD13B
FORMING & COLLECTING 1 (Group 004)					
ES13A	EP13	Glass Fiber Forming Units	07/25/1998	9,000 lbs/hr	CD13A, CD13B & CD13C
CURING & COOLING LINE 1 (Group 006)					
ES14A	EP14	3 Zone Curing Oven Manufacturer: B&M Steel of New Castle Indiana; Natural Gas Fired Max Heat Input Rate: 18.0 MMBtu/hr	07/25/1998	9,000 lbs/hr	CD14A
ES14B	EP14	Cooling Table for 1st Line	07/25/1998	9,000 lbs/hr	CD14A
FACING SIZING & PACKAGING FOR LINE 1 (Group 008)					
ES15A	FP15	Hot Roll – Facing Application	07/25/1998	50-400°F @ 180 GPM	None
ES15Aa	FP15	Infrared Radiation – Facing Application	2004	50-400°F @ 200 amps	CD15A
ES15B	FP15	Slitter Saw	07/25/1998	NA	CD15A
ES15C	FP15	EdgeTrimmer and Dicers (or Cubes)	07/25/1998	NA	CD15C and CD15D

Emission Unit ID	Emission Point ID	Emission Unit Description	Year Installed	Design Capacity	Control Device
ES15D	FP15	Choppers	07/25/1998	NA	CD15A
ES15E	FP15	Roll Up	07/25/1998	NA	CD15A
ES15F	FP15	Batt Folder	07/25/1998	NA	CD15A
ES15G	FP15	Batt Packers	07/25/1998	NA	CD15A
ES15H	FP15	Dicers or Cubers	07/25/1998	NA	CD15C and CD15D
ES15I	FP15	Blowing Wool Bagger	07/25/1998	NA	CD15A, CD15C, and CD15D
ES15J	FP15	Ring Wrapper	07/25/1998	NA	CD15A
CD15D	FP15	Screen Rooms (2)	2007/2012	Total 20,000 cfm	None
ES25J	FP15	Dicers	2004	NA	CD25A
ES25K	FP15	Silicone & De-Dusting Oil Application	2004	NA	CD25C and CD25D
ES25L	FP15	Blowing Wool Bagger	2004	NA	CD25C and CD25D
MELTING & REFINING LINE 2 (Group 003) [13,333 lbs/hr Production Rate]					
ES22	EP23	ML2INW King Melter Gas (natural gas- NG) oxygen fuel furnace Includes Electric/Gas fired canal and electric forehearth	2017	6.67 tons of glass pulled (TGP)/hr	CD22B
FORMING & COLLECTING 2 (Group 005)					
ES22E	EP23	ML2INW Forming Includes forming units (fiberizers), and collection plenum Design Total Heat Input of 20 MMBtu/hr of NG	2017	6.67 TGP/hr	CD23A, CD23B, CD23C CD23D
CURING & COOLING LINE 2 (Group 006)					
ES24A	EP24	5 Zone Curing Oven with two vestibule burners Natural Gas Fired with Max Heat Input Rate: 25.2 MMBtu/hr	2017	6.67 TGP/hr	CD24A
ES24B	EP24	Cooling Table	2017	6.67 TGP/hr	CD24B
FACING SIZING & PACKAGING FOR LINE 2 (Group 008)					
ES25A	FP23	Infrared Radiation – Facing Application Manufacturer: Solartronics IRT Model No.: IRT-MiniFlex Type: Electric	2004		None
ES25B	FP23	Slitter Saw	2004	NA	CD25A

Emission Unit ID	Emission Point ID	Emission Unit Description	Year Installed	Design Capacity	Control Device
CD25A		Water Venturi Scrubbers Manufacturer: Fisher-Klosterman, Inc. Model: MS-650H Removal Efficiency: 85 % Scrubbing Liquid: Water	2004	20,000 cfm	None
ES25C	FP23	Edge Trimmer and Dicers (or Cubes) Manufacturer:	2004		CD25A
ES25D	FP23	Choppers Manufacturer: United Tool Model No.: UX-431	2004		CD25A
ES25F	FP23	Batt Folder	2004		CD25A
ES25G	FP23	Batt Packers	2004		CD25C and CD25D
ES25H	FP23	Dicers or Cubers	2004	NA	CD25C and CD25D
ES25I	FP23	Blowing Wool Bagger	2004	NA	CD25C and CD25D
ES25J	FP23	Ring Wrapper	2004	NA	CD25A
ES25K	FP23	Silicone & Dedusting Oil Application	2004	N/A	CD25C and CD25D
ES25L	FP23	Blowing Wool Bagger	2004	N/A	CD25C and CD25D
CD25C	FP15	Dual Cyclone and Condenser Manufacturer: Van Dommele	2004	NA	CD25D
CD25D	FP15	Screen Room	2007/2012	10,000 cfm	None
		8' x 8' x 16'			
		Woven Polyester			
		Capture efficiency 95%			
ES25J	FP15	Dicers	2004	NA	CD25A
		Manufacturer: Custom Design			
		Model No.: NA			
		Type: NA			
ES25K	FP15	Silicone & De-Dusting Oil Application	2004	NA	CD25C and CD25D
ES25L	FP15	Blowing Wool Bagger Manufacturer: Custom Design	2004	NA	CD25C and CD25D
SUPPORT FACILITIES (Group 009)					
ESDG12	EP16	Emergency Generator Manufacture: Caterpillar Model No 3406 Diesel Fired Compression Ignition Engine	07/25/1998	587-bhp	None

Emission Unit ID	Emission Point ID	Emission Unit Description	Year Installed	Design Capacity	Control Device
ESDG13	EP17	Emergency Backup Generator Manufacture: Caterpillar Model No.: 3456 Diesel Fired, Compression Ignition Engine	2004	610-bhp	None
ESFW11	EP18	Emergency Fire Water Manufacturer: Cummins Model NT-855-F1 Diesel Fired Compression Ignition Engine	07/25/1998	255 hp	None
ESDG14	NewGEN	Emergency Generator Set Caterpillar C18 Diesel Fired Compression Ignition Engine	2017	900 bhp	None
ESSH15	EP19	Air Handling Unit: Rapid Engineering, Model: 4089 Fuel: Pipeline Quality Natural Gas	07/25/1998	8.525 MMBtu/hr	
ESSH16	EP22	Air Handling Unit; Rapid Engineering, Model 4089	2004	7.875 MMBtu/hr	
CT3	CT3	Cooling Tower	2017		Drift Eliminator
CT4	CT4	Cooling Tower	2017		Drift Eliminator
CT5	CT5	Cooling Tower	2017		Drift Eliminator

1.1. Control Devices

Control Device ID	Emission Point ID	Emission Unit Description	Year Installed	Design Capacity	
CD1A	FP11	Whirl-Air Flow Bin Vent DC Model: 195-42	07/25/1998	585 acfm	None
CD1B	FP11	Whirl-Air Flow Bin Vent DC Model: 195-42	07/25/1998	585 acfm	None
CD1D	FP11	Whirl-Air Flow Bin Vent DC Model: 195-42	07/25/1998	585 acfm	None
CD1D	FP11	Whirl-Air Flow Bin Vent DC Model: 195-42	07/25/1998	585 acfm	None
CD1F	FP11	Whirl-Air Flow Bin Vent DC Model: 195-42	07/25/1998	585 acfm	None
CD1G	FP11	Whirl-Air Flow Bin Vent DC 2 Model: 195-42	07/25/1998	585 acfm	None
CD1I	FP11	Whirl-Air Flow Bin Vent DC Model: 195-42	07/25/1998	585 acfm	None

Control Device ID	Emission Point ID	Emission Unit Description	Year Installed	Design Capacity	
CD1K	FP11	Whirl-Air Flow Bin Vent DC Model: 55-30	07/25/1998	165 acfm	None
CD12A	FP11	Whirl-Air Flow Bin Vent DC Model: 345-56	07/25/1998	1,035 acfm	None
CD22A	FP11	IAC Bin-Vent Model: 96TB-FRIP	07/25/1998	2,917 acfm	None
CD12D	FP11	Whirl-Air Flow Bin Vent DC Model: 130-42	07/25/1998	390 acfm	None
CD11a	EP11a	TBD	2017	TBD	None
CD11b	EP11b	TBD	2017	TBD	None
CD12C	FP11	Whirl-Air Flow Bin Vent DC Model: 230-56	07/25/1998	690 acfm	None
CD12Cb	FP11	Whirl-Air Flow Bin Vent DC Model: 265-42	07/25/1998	795 acfm	None
CD12B	EP12	Mactiflo Cartridge Dust Collector Filter Model: MAC 4 – MTF96 Configuration: Closed Pressure Filter Material: Polyester Cartridge Filter Cleaning Method: Pulse Air Removal Efficiency: 99% Filter Area: 28,320 ft	07/25/1998	15,000 acfm	None
CD12Bb (Backup)	EP12	Mactiflo Cartridge Dust Collector Model: MactFlo 4MTF32 Filter Configuration: Closed Pressure Filter Material: Polyester cartridge filter Cleaning Method: Pulse Air Removal Efficiency: 99% Filter Area: 3,520 ft ²	07/25/1998	10,000 acfm	None
CD13A	EP13	Venturi Wet Scrubber Removal Efficiency: 99% for PM	2015	53,000 acfm	None
CD13B	EP13	Venturi Wet Scrubber Removal Efficiency: 99% for PM	2015	53,000 acfm	None
CB13C	EP13	Venturi Wet Scrubber Removal Efficiency: 99% for PM	2015	53,000 acfm	None

Control Device ID	Emission Point ID	Emission Unit Description	Year Installed	Design Capacity	
CD14A	EP14	McGill AirClean RTO Thermal Oxidizer Manufacturer: United McGill Model No.: 2-151C306 Destruction Efficiency: 95 % for VOC	07/25/1998	1.785 MMft ³ / hr at 250.0 °F	None
CD15A	FP15	Wet Collection System (Dynamic Separator)	07/25/1998	20,000 cfm	None
CD15C	FP15	Dual Cyclone and Condenser	2006	NA	CD15D
CD23A	EP23	Water Venturi Scrubbers Manufacturer: Fisher-Klosterman, Inc Model: MS-1300 Removal Efficiency: 98% for PM Scrubbing Liquid: Water	2017	65,000 cfm	None
CD23B	EP23	Water Venturi Scrubbers Manufacturer: Fisher-Klosterman, Inc Model: MS-1300 Removal Efficiency: 98 % Scrubbing Liquid: Water	2017	65,000 cfm	None
CD23C	EP23	Water Venturi Scrubbers Manufacturer: Fisher-Klosterman, Inc. Model: MS-1300 Removal Efficiency: 98 % Scrubbing Liquid: Water Custom Design	2017	65,000 cfm	None
CD23C	EP23	Water Venturi Scrubbers Manufacturer: Fisher-Klosterman, Inc. Model: MS-1300 Removal Efficiency: 98 % Scrubbing Liquid: Water	2017	65,000 cfm	None
CD24A	EP24	McGill Air Clean MCT 30.0 Regentive Thermal Oxidizer Destruction Efficiency: 95 % for VOC	2004		
CD24B	EP24	Water Venturi Scrubbers Manufacturer: Fisher-Klosterman, Inc.			
CD25A	FP23	Dust Collectector (cyclone) -Device vents to CD25Ab	2017	NA	
CD25Ab	FP23	Secondary dust collector (cartridge filter)	2017	NA	

2.0. General Conditions

2.1. Definitions

- 2.1.1. All references to the “West Virginia Air Pollution Control Act” or the “Air Pollution Control Act” mean those provisions contained in W.Va. Code §§ 22-5-1 to 22-5-18.
- 2.1.2. The “Clean Air Act” means those provisions contained in 42 U.S.C. §§ 7401 to 7671q, and regulations promulgated thereunder.
- 2.1.3. “Secretary” means the Secretary of the Department of Environmental Protection or such other person to whom the Secretary has delegated authority or duties pursuant to W.Va. Code §§ 22-1-6 or 22-1-8 (45CSR§30-2.12.). The Director of the Division of Air Quality is the Secretary’s designated representative for the purposes of this permit.

2.2. Acronyms

CAAA	Clean Air Act Amendments	NO_x	Nitrogen Oxides
CBI	Confidential Business Information	NSPS	New Source Performance Standards
CEM	Continuous Emission Monitor	PM	Particulate Matter
CES	Certified Emission Statement	PM_{2.5}	Particulate Matter less than 2.5 µm in diameter
C.F.R. or CFR	Code of Federal Regulations	PM₁₀	Particulate Matter less than 10µm in diameter
CO	Carbon Monoxide	Ppb	Pounds per Batch
C.S.R. or CSR	Codes of State Rules	Pph	Pounds per Hour
DAQ	Division of Air Quality	Ppm	Parts per Million
DEP	Department of Environmental Protection	Ppmv or ppmv	Parts per Million by Volume
dscm	Dry Standard Cubic Meter	PSD	Prevention of Significant Deterioration
FOIA	Freedom of Information Act	Psi	Pounds per Square Inch
HAP	Hazardous Air Pollutant	SIC	Standard Industrial Classification
HON	Hazardous Organic NESHAP	SIP	State Implementation Plan
HP	Horsepower	SO₂	Sulfur Dioxide
lbs/hr	Pounds per Hour	TAP	Toxic Air Pollutant
LDAR	Leak Detection and Repair	TGP	Ton of Glass Pulled
M	Thousand	TPY	Tons per Year
MACT	Maximum Achievable Control Technology	TRS	Total Reduced Sulfur
MDHI	Maximum Design Heat Input	TSP	Total Suspended Particulate
MM	Million	USEPA	United States Environmental Protection Agency
MMBtu/hr or mmbtu/hr	Million British Thermal Units per Hour	UTM	Universal Transverse Mercator
MMCF/hr or mmcf/hr	Million Cubic Feet per Hour	VEE	Visual Emissions Evaluation
NA	Not Applicable	VOC	Volatile Organic Compounds
NAAQS	National Ambient Air Quality Standards	VOL	Volatile Organic Liquids
NESHAPS	National Emissions Standards for Hazardous Air Pollutants		

2.3. Authority

This permit is issued in accordance with West Virginia Air Pollution Control Act W.Va. Code §§ 22-5-1, et seq. and the following Legislative Rules promulgated thereunder:

- 2.3.1. 45CSR13 – *Permits for Construction, Modification, Relocation and Operation of Stationary Sources of Air Pollutants, Notification Requirements, Temporary Permits, General Permits and Procedures for Evaluation;*
- 2.3.2. 45CSR14 – *Permits for Construction and Major Modification of Major Stationary Sources of Air Pollution for the Prevention of Significant Deterioration;*

2.4. Term and Renewal

- 2.4.1. This permit supersedes and replaces previously issued Permit R14-0015L. This Permit shall remain valid, continuous and in effect unless it is revised, suspended, revoked or otherwise changed under an applicable provision of 45CSR13 or any other applicable legislative rule;

2.5. Duty to Comply

- 2.5.1. The permitted facility shall be constructed and operated in accordance with the plans and specifications filed in Permit Application R14-0015, R14-0015A, R14-0015B, R14-0015C, R14-0015D, R14-0015E, R14-0015F, R14-0015G, R14-0015H, R14-0015I, R14-0015J, R1-0015K, R14-0015L, R14-0015M, and any modifications, administrative updates, or amendments thereto. The Secretary may suspend or revoke a permit if the plans and specifications upon which the approval was based are not adhered to;
[45CSR§§13-5.11 and 10.3.]
- 2.5.2. The permittee must comply with all conditions of this permit. Any permit noncompliance constitutes a violation of the West Virginia Code and the Clean Air Act and is grounds for enforcement action by the Secretary or USEPA;
- 2.5.3. Violations of any of the conditions contained in this permit, or incorporated herein by reference, may subject the permittee to civil and/or criminal penalties for each violation and further action or remedies as provided by West Virginia Code 22-5-6 and 22-5-7;
- 2.5.4. Approval of this permit does not relieve the permittee herein of the responsibility to apply for and obtain all other permits, licenses, and/or approvals from other agencies; i.e., local, state, and federal, which may have jurisdiction over the construction and/or operation of the source(s) and/or facility herein permitted.

2.6. Duty to Provide Information

The permittee shall furnish to the Secretary within a reasonable time any information the Secretary may request in writing to determine whether cause exists for administratively updating, modifying, revoking, or terminating the permit or to determine compliance with the permit. Upon request, the permittee shall also furnish to the Secretary copies of records to be kept by the permittee. For information claimed to be confidential, the permittee shall furnish such records to the Secretary along with a claim of confidentiality in accordance with 45CSR31. If confidential information is to be sent to USEPA, the permittee shall directly provide such information to USEPA along with a claim of confidentiality in accordance with 40 C.F.R. Part 2.

2.7. Duty to Supplement and Correct Information

Upon becoming aware of a failure to submit any relevant facts or a submittal of incorrect information in any permit application, the permittee shall promptly submit to the Secretary such supplemental facts or corrected information.

2.8. Administrative Update

The permittee may request an administrative update to this permit as defined in and according to the procedures specified in 45CSR13.

[45CSR§13-4.]

2.9. Permit Modification

The permittee may request a minor modification to this permit as defined in and according to the procedures specified in 45CSR13.

[45CSR§13-5.4.]

2.10 Major Permit Modification

The permittee may request a major modification as defined in and according to the procedures specified in 45CSR14 or 45CSR19, as appropriate.

[45CSR§13-5.1]

2.11. Inspection and Entry

The permittee shall allow any authorized representative of the Secretary, upon the presentation of credentials and other documents as may be required by law, to perform the following:

- a. At all reasonable times (including all times in which the facility is in operation) enter upon the permittee's premises where a source is located or emissions related activity is conducted, or where records must be kept under the conditions of this permit;
- b. Have access to and copy, at reasonable times, any records that must be kept under the conditions of this permit;
- c. Inspect at reasonable times (including all times in which the facility is in operation) any facilities, equipment (including monitoring and air pollution control equipment), practices, or operations regulated or required under the permit; and
- d. Sample or monitor at reasonable times substances or parameters to determine compliance with the permit or applicable requirements or ascertain the amounts and types of air pollutants discharged.

2.12. Emergency

- 2.12.1. An "emergency" means any situation arising from sudden and reasonable unforeseeable events beyond the control of the source, including acts of God, which situation requires immediate corrective action to restore normal operation, and that causes the source to exceed a technology-based emission limitation under the permit, due to unavoidable increases in emissions attributable to the emergency. An emergency shall not include noncompliance to the extent caused by

improperly designed equipment, lack of preventative maintenance, careless or improper operation, or operator error.

- 2.12.2. Effect of any emergency. An emergency constitutes an affirmative defense to an action brought for noncompliance with such technology-based emission limitations if the conditions of Section 2.12.3 are met.
- 2.12.3. The affirmative defense of emergency shall be demonstrated through properly signed, contemporaneous operating logs, or other relevant evidence that:
 - a. An emergency occurred and that the permittee can identify the cause(s) of the emergency;
 - b. The permitted facility was at the time being properly operated;
 - c. During the period of the emergency the permittee took all reasonable steps to minimize levels of emissions that exceeded the emission standards, or other requirements in the permit; and
 - d. The permittee submitted notice of the emergency to the Secretary within one (1) working day of the time when emission limitations were exceeded due to the emergency and made a request for variance, and as applicable rules provide. This notice must contain a detailed description of the emergency, any steps taken to mitigate emissions, and corrective actions taken.
- 2.12.4. In any enforcement proceeding, the permittee seeking to establish the occurrence of an emergency has the burden of proof.
- 2.12.5 The provisions of this section are in addition to any emergency or upset provision contained in any applicable requirement.

2.13. Need to Halt or Reduce Activity Not a Defense

It shall not be a defense for a permittee in an enforcement action that it should have been necessary to halt or reduce the permitted activity in order to maintain compliance with the conditions of this permit. However, nothing in this paragraph shall be construed as precluding consideration of a need to halt or reduce activity as a mitigating factor in determining penalties for noncompliance if the health, safety, or environmental impacts of halting or reducing operations would be more serious than the impacts of continued operations.

2.14. Suspension of Activities

In the event the permittee should deem it necessary to suspend, for a period in excess of sixty (60) consecutive calendar days, the operations authorized by this permit, the permittee shall notify the Secretary, in writing, within two (2) calendar weeks of the passing of the sixtieth (60) day of the suspension period.

2.15. Property Rights

This permit does not convey any property rights of any sort or any exclusive privilege.

2.16. Severability

The provisions of this permit are severable and should any provision(s) be declared by a court of competent jurisdiction to be invalid or unenforceable, all other provisions shall remain in full force and effect.

2.17. Transferability

This permit is transferable in accordance with the requirements outlined in Section 10.1 of 45CSR13.
[45CSR§13-10.1.]

2.18. Notification Requirements

The permittee shall notify the Secretary, in writing, no later than thirty (30) calendar days after the actual startup of the operations authorized under this permit.

2.19. Credible Evidence

Nothing in this permit shall alter or affect the ability of any person to establish compliance with, or a violation of, any applicable requirement through the use of credible evidence to the extent authorized by law. Nothing in this permit shall be construed to waive any defense otherwise available to the permittee including, but not limited to, any challenge to the credible evidence rule in the context of any future proceeding.

3.0. Facility-Wide Requirements

3.1. Limitations and Standards

- 3.1.1. **Open burning.** The open burning of refuse by any person, firm, corporation, association or public agency is prohibited except as noted in 45CSR§6-3.1.
[45CSR§6-3.1.]
- 3.1.2. **Open burning exemptions.** The exemptions listed in 45CSR§6-3.1 are subject to the following stipulation: Upon notification by the Secretary, no person shall cause, suffer, allow or permit any form of open burning during existing or predicted periods of atmospheric stagnation. Notification shall be made by such means as the Secretary may deem necessary and feasible.
[45CSR§6-3.2.]
- 3.1.3. **Asbestos.** The permittee is responsible for thoroughly inspecting the facility, or part of the facility, prior to commencement of demolition or renovation for the presence of asbestos and complying with 40 C.F.R. § 61.145, 40 C.F.R. § 61.148, and 40 C.F.R. § 61.150. The permittee, owner, or operator must notify the Secretary at least ten (10) working days prior to the commencement of any asbestos removal on the forms prescribed by the Secretary if the permittee is subject to the notification requirements of 40 C.F.R. § 61.145(b)(3)(i). The USEPA, the Division of Waste Management, and the Bureau for Public Health - Environmental Health require a copy of this notice to be sent to them.
[40CFR§61.145(b) and 45CSR§34]
- 3.1.4. **Odor.** No person shall cause, suffer, allow or permit the discharge of air pollutants which cause or contribute to an objectionable odor at any location occupied by the public.
[45CSR§4-3.1] [State Enforceable Only]
- 3.1.5. **Permanent shutdown.** A source which has not operated at least 500 hours in one 12-month period within the previous five (5) year time period may be considered permanently shutdown, unless such source can provide to the Secretary, with reasonable specificity, information to the contrary. All permits may be modified or revoked and/or reapplication or application for new permits may be required for any source determined to be permanently shutdown.
[45CSR§13-10.5.]
- 3.1.6. **Standby plan for reducing emissions.** When requested by the Secretary, the permittee shall prepare standby plans for reducing the emissions of air pollutants in accordance with the objectives set forth in Tables I, II, and III of 45CSR11.
[45CSR§11-5.2.]

3.2. Monitoring Requirements

[Reserved]

3.3. Testing Requirements

- 3.3.1. **Stack testing.** As per provisions set forth in this permit or as otherwise required by the Secretary, in accordance with the West Virginia Code, underlying regulations, permits and orders, the permittee shall conduct test(s) to determine compliance with the emission limitations set forth in this permit and/or established or set forth in underlying documents. The Secretary, or his duly authorized representative, may at his option witness or conduct such test(s). Should the Secretary exercise his option to conduct such test(s), the operator shall provide all necessary sampling

connections and sampling ports to be located in such manner as the Secretary may require, power for test equipment and the required safety equipment, such as scaffolding, railings and ladders, to comply with generally accepted good safety practices. Such tests shall be conducted in accordance with the methods and procedures set forth in this permit or as otherwise approved or specified by the Secretary in accordance with the following:

- a. The Secretary may on a source-specific basis approve or specify additional testing or alternative testing to the test methods specified in the permit for demonstrating compliance with 40 C.F.R. Parts 60, 61, and 63 in accordance with the Secretary's delegated authority and any established equivalency determination methods which are applicable. If a testing method is specified or approved which effectively replaces a test method specified in the permit, the permit may be revised in accordance with 45CSR§13-4. or 45CSR§13-5.4 as applicable.
- b. The Secretary may on a source-specific basis approve or specify additional testing or alternative testing to the test methods specified in the permit for demonstrating compliance with applicable requirements which do not involve federal delegation. In specifying or approving such alternative testing to the test methods, the Secretary, to the extent possible, shall utilize the same equivalency criteria as would be used in approving such changes under Section 3.3.1.a. of this permit. If a testing method is specified or approved which effectively replaces a test method specified in the permit, the permit may be revised in accordance with 45CSR§13-4. or 45CSR§13-5.4 as applicable.
- c. All periodic tests to determine mass emission limits from or air pollutant concentrations in discharge stacks and such other tests as specified in this permit shall be conducted in accordance with an approved test protocol. Unless previously approved, such protocols shall be submitted to the Secretary in writing at least thirty (30) days prior to any testing and shall contain the information set forth by the Secretary. In addition, the permittee shall notify the Secretary at least fifteen (15) days prior to any testing so the Secretary may have the opportunity to observe such tests. This notification shall include the actual date and time during which the test will be conducted and, if appropriate, verification that the tests will fully conform to a referenced protocol previously approved by the Secretary.
- d. The permittee shall submit a report of the results of the stack test within sixty (60) days of completion of the test. The test report shall provide the information necessary to document the objectives of the test and to determine whether proper procedures were used to accomplish these objectives. The report shall include the following: the certification described in paragraph 3.5.1.; a statement of compliance status, also signed by a responsible official; and, a summary of conditions which form the basis for the compliance status evaluation. The summary of conditions shall include the following:
 1. The permit or rule evaluated, with the citation number and language;
 2. The result of the test for each permit or rule condition; and,
 3. A statement of compliance or noncompliance with each permit or rule condition.

[WV Code § 22-5-4(a)(14-15) and 45CSR13]

3.4. Recordkeeping Requirements

- 3.4.1. **Retention of records.** The permittee shall maintain records of all information (including monitoring data, support information, reports, and notifications) required by this permit recorded in a form suitable and readily available for expeditious inspection and review. Support information

includes all calibration and maintenance records and all original strip-chart recordings for continuous monitoring instrumentation. The files shall be maintained for at least five (5) years following the date of each occurrence, measurement, maintenance, corrective action, report, or record. At a minimum, the most recent two (2) years of data shall be maintained on site. The remaining three (3) years of data may be maintained off site, but must remain accessible within a reasonable time. Where appropriate, the permittee may maintain records electronically (on a computer, on computer floppy disks, CDs, DVDs, or magnetic tape disks), on microfilm, or on microfiche.

- 3.4.2. **Odors.** For the purposes of 45CSR4, the permittee shall maintain a record of all odor complaints received, any investigation performed in response to such a complaint, and any responsive action(s) taken.
[45CSR§4. State Enforceable Only.]

3.5. Reporting Requirements

- 3.5.1. **Responsible official.** Any application form, report, or compliance certification required by this permit to be submitted to the DAQ and/or USEPA shall contain a certification by the responsible official that states that, based on information and belief formed after reasonable inquiry, the statements and information in the document are true, accurate, and complete.
- 3.5.2. **Confidential information.** A permittee may request confidential treatment for the submission of reporting required by this permit pursuant to the limitations and procedures of W.Va. Code § 22-5-10 and 45CSR31.
- 3.5.3. **Correspondence.** All notices, requests, demands, submissions and other communications required or permitted to be made to the Secretary of DEP and/or USEPA shall be made in writing and shall be deemed to have been duly given when delivered by hand, or mailed first class or by private carrier with postage prepaid to the address(es), or submitted in electronic format by email as set forth below or to such other person or address as the Secretary of the Department of Environmental Protection may designate:

DAQ:
Director
WVDEP
Division of Air Quality
601 57th Street
Charleston, WV 25304-2345

DAQ Compliance and Enforcement¹:
DEPAirQualityReports@wv.gov

US EPA:
Associate Director
Office of Air Enforcement and Compliance Assistance
(3AP20)
U.S. Environmental Protection Agency
Region III
1650 Arch Street
Philadelphia, PA 19103-2029

¹For all self-monitoring reports (MACT, GACT, NSPS, etc.), stack tests and protocols, Notice of Compliance Status Reports, Initial Notifications, etc.

3.5.4. Operating Fee

- 3.5.4.1. In accordance with 45CSR30 – Operating Permit Program, the permittee shall submit a certified emissions statement and pay fees on an annual basis in accordance with the submittal requirements of the Division of Air Quality. A receipt for the appropriate fee shall be

maintained on the premises for which the receipt has been issued, and shall be made immediately available for inspection by the Secretary or his/her duly authorized representative.

- 3.5.5. **Emission inventory.** At such time(s) as the Secretary may designate, the permittee herein shall prepare and submit an emission inventory for the previous year, addressing the emissions from the facility and/or process(es) authorized herein, in accordance with the emission inventory submittal requirements of the Division of Air Quality. After the initial submittal, the Secretary may, based upon the type and quantity of the pollutants emitted, establish a frequency other than on an annual basis.

4.0. Fiberglass Production Lines Specific Requirements

4.1. Limitations and Standards

4.1.1. The permittee shall operate a resinated fiberglass insulation line identified as 1st line with associated emission EP12 (melter stack), EP13 (collection stack), and EP14 (incinerator stack). This line shall be operated and maintained in accordance with the following operational and emission limitations after the Knauf Technology change is implemented:

- a. The production line shall not use a phenol-formaldehyde binder in manufacturing resinated wool fiberglass insulation.
- b. Production of fiberglass insulation from this line shall not exceed 9,000 pounds of glass pulled per hour or 39,420 TPY. Compliance with these limits shall be based on a 12-month rolling total;
- c. Once the production line has been converted to the Knauf technology, the emissions from the line shall not exceed the following limits with respect to the corresponding emission point and pollutant;

Table 4.1.1.c. Emission Limits for the 1st Line						
Emission Point	CO lb/TGP	NO_x lb/TGP	PM lb/TGP	PM₁₀ lb/TGP	VOC* lb/TGP	NH₃ lb/ TGP
EP12	0.73	0.03	0.07	0.07		
EP13	3.60 ¹	3.61	3.49	3.49	2.54 ¹	4.64 ¹
EP14						

lb/TGP - pounds of pollutant per ton of glass pulled.

* - VOC emissions shall not include methane and ethane.

¹ - Compliance with the emission limit be the sum of the respective pollutant of both emission points.

- d. Exhaust from the electric melter shall be vented into a closed vent system that routes this stream directly to either one of identified baghouses (CD12B or CD12Bb) at all times when the line is operating;
- e. The exhaust from the forehearth and fiberizers of this line shall be vented into a closed vent system that routes this stream directly to either one of identified wet scrubbers CD13A, CD13B, or CD13C at all times when the line is operating.
- f. Exhaust from the curing oven shall be vented into a closed vent system that routes this stream directly to the United McGill Thermal Oxidizer identified as CD14A at all times when the line is operating. The oxidizer shall be operated and maintained in accordance with the following:
 - i. The temperature of combustion chamber shall not fall below 1,500°F or the average temperature recorded during the most recent performance testing that demonstrated compliance with the VOC emissions limits. Compliance with this limit shall be based on rolling three hour average.
 - ii. The oxidizer shall not consume more than 5,000 cubic feet of natural gas per hour or 43.8 MMscf per year.

- 4.1.2. The permittee shall operate a fiberglass insulation line identified as 2nd line with associated emission points, EP23 (melter/collection stack), and EP24 (curing & cooling stack). This line shall be operated and maintained in accordance with the following operational and emission limitations:
- The production line shall not use a phenol-formaldehyde binder in manufacturing resinated wool fiberglass insulation.
 - Production fiberglass insulation from this line shall not exceed 13,333 pounds of glass pulled per hour and 58,400 TPY. Compliance with this annual limit shall be based on a 12-month rolling total;
 - Emissions from the line shall not exceed the following limits with respect to the corresponding emission point and pollutant:

Table 4.1.2.c. Emission Limits for the 2nd Line									
Emission Unit	Emission Point	CO lb/TGP	NO_x lb/TGP	SO₂ lb/TGP	PM² lb/TGP	PM₁₀¹ lb/TGP	PM_{2.5}¹ lb/TGP	VOC* lb/TGP	NH₃ lb/TGP
ES22	EP23	0.52	3.00	0.78	0.25	0.25	0.25	0.20	
Total	EP23	1.64	3.21	0.81	2.92	3.58	3.58	1.21	4.29
ES22E, ES24A, ES24B	EP23/EP24	2.34	0.80	0.05	3.45	4.31	4.31	0.87	4.73
Total	EP24	1.22	0.59	0.03	0.88	1.10	1.10	0.39	0.44

1 – The limit includes the corresponding filterable portion and condensable particulate matter fraction.

2 – These limits satisfy the allowable under 45 CSR §7-3.1. and the standard in 40 CFR §60.682.

lb/TGP - pounds of pollutant per ton of glass pulled.

* - VOC emissions shall not include methane and ethane.

- Visible emissions from Emission Points EP23 and EP24, excluding condensed water vapor, shall not exceed 20 percent based on a six (6) minute average and shall apply at all times.
- Exhaust from the gas oxygen glass-melting furnace, which includes the canal and forehearth, shall be vented into a closed vent system that routes this stream directly to the control device identified baghouses CD22B at all times when the furnace is operating except during startup operations or when the melter is drained of molten glass but is operated to maintain temperature to preform maintenance on CD22B;
 - The startup operations shall begin when any raw materials are added and reaches 50 percent of its typical operating temperature. Startup ends when molten glass begins to flow from the wool fiberglass glass-melting furnace.
 - Only during startup operations or when the melter is completely drain of molten glass to allow for maintenance on control device CD22B, the permittee may by-pass control device CD22B.
 - During startup, the permittee shall only use natural gas.
 - The permittee shall install and maintain a system that indicates and records when Control Device CD22B is by-passed. Such recording system shall be integrated with the data system for the glass pull rate system.

- f. For the purpose of maximizing the collection of filterable PM using the wet scrubbers associated with 2nd Line (CD23A, CD23B, CD23C, CD23D, and CD24B), the permittee shall operate the wet scrubbing device with a pressure drop of at least 3 inches of water column and a liquor flow rate of no less than 50 gpm until operating parameters for the associated device is established through performance testing as required in Condition 4.3.5.
- g. For minimizing fugitive PM from the trimming and packaging sections of the line, exhaust from the trimming and packing operations shall be routed to a closed vent system to Control Devices CD25A and CD25B.
- h. For minimizing the formation of oxides of nitrogen emissions from the glass-melting furnace, the permittee shall the use a ratio of oxygen enrichment to combustion air equal to or greater than the ratio determined during the initial compliance determination used to established the minimum oxygen enrichment to combustion air ratio. The permittee shall develop and implement a monitoring plan to continuously monitor the ratio of oxygen enrichment to combustion air or a surrogate parameter that was measured and is linked to the minimum oxygen enrichment to combustion air ratio during the compliance demonstration.
[45 CSR 14-8.3.]
- i. For minimizing the formation of oxides of nitrogen emissions from the burner(s) associated with the canal section of the glass-melting furnace, the permittee shall tune-up the burner(s) at least once per year for optimizing the formation of oxides of nitrogen while minimizing the formation of carbon monoxide.
[45 CSR 14-8.3.]
- j. For minimizing the formation of oxides of nitrogen from the forming section, the permittee shall install and thereafter continuously whenever fiberglass is being produced, and maintain the use of combustion controls which minimize peak flame temperatures in the fiber forming process.
[45 CSR 14-8.3.]
- k. Exhaust from the forming section (ML2INW Forming) of this line will be vented into a closed vent system that routes this stream directly to one of four venturi scrubbers (CD23A, CD23B CD23C, or CD23D).
[45 CSR 14-8.3.]
- l. For minimizing the formation of oxides of nitrogen from the curing oven, the permittee shall install, maintain, and thereafter continuously whenever fiberglass is being produced, and maintain the use of low NO_x burners with integrated flue gas recirculation and combustion controls which minimize peak flame temperatures in the fiberglass curing process. The permittee shall tune-up the burner(s) at least once per year for the purpose of optimizing the formation of oxides of nitrogen while minimizing the formation of carbon monoxide.
[45 CSR 14-8.3.]
- m. If the exhaust from the curing oven contains VOCs greater than the permitted rated in Table 4.1.2.c., the permittee shall vent the exhaust into a closed vent system that routes this stream directly to the McGill AirClean Thermal Oxidizer identified as CD24A at all times when the line is operating. The oxidizer shall be operated and maintained in accordance with the following:
 - i. The temperature of combustion chamber shall not fall below 1,500°F or the average temperature recorded during the most recent performance testing that demonstrated compliance with the VOC emissions limits. Compliance with this limit shall be based on rolling three-hour average.

- ii. The oxidizer is permitted to use natural gas as a supplemental fuel in order to maintain the minimum temperature in the combustion chamber.
 - n. A continuous pull rate monitor shall be installed, calibrated, and maintained that measures and records the glass pull rate of the line on an hourly basis; and
 - o. Exhaust from the cooling table of this line shall be vented into a closed vent system that routes this stream directly to a venturi scrubber (CD24B) at all times when the line is operating.
- 4.1.3. The following conditions applies to both production lines.
- a. A bag leak detection system (BLDS) shall be installed and operated on the fabric filter baghouses identified as CD12B, CD12Bb, and CD22B. Each BLDS shall be installed, maintained, and operated in accordance with U.S. EPA guidance document, “Fabric Filter Bag Leak Detection Guidance” (EPA-454/R-98-015, September 1997);
 - b. A device that continuously measures and records the pressure drop across the scrubber shall be installed, calibrated, maintained, and operated for each venturi scrubber (CD13A, CD13B, CD13C, CD23A, CD23B, CD23C, CD23D and CD24B). Such device is to be certified by its manufacturer to be accurate within ± 250 pascals (± 1 inch water gauge) over its operating range.
[40 CFR §60.683(a) and 40 CFR §60.13(b)]
 - c. A device that continuously measures and records the scrubbing liquid flow to each wet scrubber shall be installed, calibrated, maintained, and operated for each venturi scrubber (CD13A, CD13B, CD13C, CD23A, CD23B, CD23C, CD23D, and CD24B). Such device is to be certified by its manufacturer to be accurate within ± 5 percent over its operating range.
[40 CFR §60.683(a) and 40 CFR §60.13(b)]
 - d. A device that continuously measures and records the temperature of the combustion chamber for each thermal oxidizer (CD15 & CD25) shall be installed, calibrated, maintained, and continuously operated. Such device shall be certified by the manufacturer to be accurate within \pm one (1) degrees Fahrenheit.
 - e. All monitoring devices required in items b and c of this condition shall be recalibrated quarterly in accordance with procedures under 40 CFR §60.13(b).
[40 CFR 60.683(c)]
- 4.1.4. **Operation and Maintenance of Air Pollution Control Equipment.** The permittee shall, to the extent practicable, install, maintain, and operate all pollution control equipment listed in Section 1.0 and associated monitoring equipment in a manner consistent with safety and good air pollution control practices for minimizing emissions, or comply with any more stringent limits set forth in this permit or as set forth by any State rule, Federal regulation, or alternative control plan approved by the Secretary.
[45CSR§13-5.11.]

4.2. Monitoring Requirements

- 4.2.1. The permittee shall monitor and record the hourly production rate on a daily basis for each line. These records shall include the monthly total and the 12-month rolling total for each line respectively. Such records shall be maintained in accordance with condition 3.4.1. For the Line 2, the permittee shall record the date and time start-up began and ended for the gas oxygen glass melting furnace and any time period that Control Device CD22B was being by-passed while the gas

oxygen glass melting furnace was operating. Such records shall be maintained in accordance with Condition 3.4.1.

- 4.2.2. The permittee shall maintain records of the recorded data from the stipulated control devices in condition 4.1.3.b. through e. in accordance with condition 3.4.1.
- 4.2.3. The permittee shall monitor and record the product LOI of the each resinated product manufactured. The frequency of such monitoring shall not be no less than once every eight hours. The LOI shall be determined using ASTM D2584-68 (Reapproved 1985) or 94. Such records shall be maintained in accordance with Condition 3.4.1.
- 4.2.4. The permittee shall monitor the ratio of oxygen enrichment to combustion air for the gas oxygen glass-melting furnace on a continuous basis while the glass is being melted. Such records shall be maintained in accordance with Condition 3.4.1.
- 4.2.5. The permittee shall develop and implement a verification means to ensure the combustion controls or controller used to minimize the flame temperature of the burners used in the glass forming units and curing oven of the 2nd Line is maintaining the minimum flame temperature. The frequency of the monitoring shall be at least four times or measurements per operating day. Records of such monitoring shall be maintained in accordance with Condition 3.4.1.
- 4.2.6. Should the measured sulfur dioxide emission as required in Condition 4.3.5. is greater than 50 percent of the permitted SO₂ in Table 4.1.2.c., then the permittee shall monitor and record the amount of raw materials or feedstock that contains sulfur compounds consumed each month. Such records shall be maintained in accordance with Condition 3.4.1.

4.3. Testing Requirements

- 4.3.1. For the purposes of demonstrating compliance with operational and emission limitation in Conditions 4.1.1., and 4.1.2., the permittee shall conduct performance testing as required by the following conditions in this section. This testing shall establish and/or verify the operating parameters for the respective control devices of the production line and operating parameters of the line. This testing shall be conducted as outlined in the following:
 - a. General Testing Requirements:
 - i. This testing shall consist of three test runs. Each test run must last at least one hour unless the otherwise specified;
 - ii. Each test run must be conducted with the production line operating at no less 90 percent capacity;
 - iii. During each test run, sampling of the collection and incinerator must occur simultaneously to each other;
 - iv. The line must be producing a product with a highest LOI expected to be produced by this line;
 - v. Test(s) shall not be conducted during periods of startup, shutdown, or malfunctions as specified in 40 CFR §60.8(c);
 - vi. During such testing, the permittee shall measure and record the, the binder formulation used, and the product LOI;

- vii. During such testing, the permittee shall monitor and record all of the operating parameters respective to the production line as noted in condition 4.3.1. in thirty (30) minute intervals. The arithmetic average shall be calculated for each parameter using all of recorded measurements. Such measurements and arithmetic averages shall be included with the testing report;
 - b. Demonstrating compliance with the VOC emission limit shall be conducted with a method(s) approved by the Director. The permittee may propose a testing method as part of the required protocol of condition 3.4.1.
 - c. Compliance with the VOC limits shall be determined by taking the sum of the arithmetic average from the collection stack and incinerator stack for the 1st line. The reported emission rates shall be in terms of pounds per ton of glass pulled.
 - d. Such testing shall be conducted in accordance with 3.3.1.
- 4.3.2. Within 180 days after re-starting of the 1st line from completing the Knauf Technology project, the permittee shall conduct performance testing to demonstrate compliance with the CO, NO_x, PM, and VOC emission limits of Condition 4.1.1.c. Such testing shall be conducted as prescribed in condition 4.3.1. for CO, NO_x, and VOC. For PM, such testing shall be conducted as outlined in condition 4.3.4. For carbon monoxide, such testing shall be conducted in accordance with U.S. EPA Method 10. This testing shall establish and/or verify the operating parameters for the respective control devices of the production line.
- 4.3.3. Once every five years, the permittee shall conduct emission testing to demonstrate compliance with the permitted CO and NO_x emission limits in 4.1.1.c. and 4.1.2.c. for the collection stack (EP13 and EP23) and incinerator stack (EP14 and EP 24) of each production line and to verify and/or establish operating parameters for the process. This testing shall be conducted as outlined in 3.3.1., 4.3.1.a. and as follows:
- a. Demonstrating compliance with the carbon monoxide limits shall be conducted in accordance with U.S. EPA Method 10; and
 - b. Demonstrating compliance with the oxides of nitrogen limits shall be conducted in accordance with U.S. EPA Method 7E.
- 4.3.4. Once every 5 years or within 180 days of when the production line will be producing a product with a specified LOI of 1 % greater than the previous compliance test that demonstrated compliance with the permitted PM visible emission limits of this permit, the permittee shall conduct performance testing to determine the PM emission rate of the collection and incinerator stacks of the respective production line. Such testing shall be conducted as outlined in Condition 4.3.1.a. and U.S. EPA Method 5E. Method 9 shall be utilized to determine the visible emissions exhibit for the emission point. The sampling time and sample volume shall be at least 120 minutes and 2.55 dscm (90.1 dscf). This testing shall establish and/or verify the operating parameters for the respective control devices of the production line. At 30-minute intervals during each 2-hour test run of each performance test of a wet scrubber control device, the permittee shall record the measurements required by Condition 4.1.3.b & c. (40 CFR §60.683(a)), LOI of the glass fiber produced, and production rate.
[40 CFR §60.685]
- 4.3.5. Within 180 days after initial re-starting of Line 2 from completing production upgrade project (i.e. installing the oxy-gas glass -melting furnace) as proposed in Permit Application R14-0015M, the permittee shall conduct performance testing to demonstrate compliance with the CO, NO_x, SO₂, PM, PM₁₀, PM_{2.5}, visible emissions (opacity), and VOC emission limits of Condition 4.1.2.c and d. Such testing shall be conducted as prescribed in condition 4.3.1. for CO, NO_x, and VOC. For PM/PM₁₀/PM_{2.5}, such testing shall be conducted as outlined in condition 4.3.4. For oxides of

nitrogen and carbon monoxide, such testing shall be conducted using test methods outlined in Condition 4.3.3. For SO₂, the permittee shall conduct testing using a method approved by the Director. This testing shall establish and/or verify the operating parameters for the respective control devices of the production line, parameter(s) used to verify the controller used to minimum flame temperature, minimum operating temperature of CD24A, and establish the maximum daily average LOI operating parameter.

If the permittee elects to demonstrate compliance with the limits in Table 4.1.2.c. based on the individual limits for the glass-melting furnace, then the permittee shall use test Method 201 or 201A for the filterable portion and Method 202 for the condensable portion and report the total of these two fractions as for PM₁₀ and PM_{2.5}.

- 4.3.6. For the purpose of demonstrating that Control Device CD24A is not required to meet the VOC limit in Condition 4.1.2.c., the permittee shall conduct a performance test before the inlet of Control Device CD24A in accordance with the procedures and methods outline in Condition 4.3.1. A satisfactory demonstration shall be defined as the average VOC emission rate of the three runs is less than 80% of the permitted limit in Table 4.1.2.c. with no individual runs above the permitted limit. As results of a satisfactory demonstration, compliance with the permitted VOC limit shall be based on operating the line with a daily average LOI at or less than as measured during the satisfactory demonstration. Such records shall be maintained in accordance with Condition 3.4.1.

4.4. Recordkeeping Requirements

- 4.4.1. **Record of Monitoring.** The permittee shall keep records of monitoring information that include the following:
- a. The date, place as defined in this permit, and time of sampling or measurements;
 - b. The date(s) analyses were performed;
 - c. The company or entity that performed the analyses;
 - d. The analytical techniques or methods used;
 - e. The results of the analyses; and
 - f. The operating conditions existing at the time of sampling or measurement.
- 4.4.2. **Record of Maintenance of Air Pollution Control Equipment.** For all pollution control equipment listed in Section 1.0, the permittee shall maintain accurate records of all required pollution control equipment inspection and/or preventative maintenance procedures.
- 4.4.3. **Record of Malfunctions of Air Pollution Control Equipment.** For all air pollution control equipment listed in Section 1.0, the permittee shall maintain records of the occurrence and duration of any malfunction or operational shutdown of the air pollution control equipment during which excess emissions occur. For each such case, the following information shall be recorded:
- a. The equipment involved.
 - b. Steps taken to minimize emissions during the event.
 - c. The duration of the event.

- d. The estimated increase in emissions during the event.

For each such case associated with an equipment malfunction, the additional information shall also be recorded:

- e. The cause of the malfunction.
- f. Steps taken to correct the malfunction.
- g. Any changes or modifications to equipment or procedures that would help prevent future recurrences of the malfunction.

- 4.4.4. The permittee shall maintain records of the any and all testing conducted as required in Section 4.3. in accordance with Condition 3.4.1.
- 4.4.5. The permittee shall record the date and time of any bag leak detection system alarm. Such record shall include when corrective actions were initiated, the cause of the alarm, an explanation of the corrective actions taken, and when the cause as the alarm was corrected and be maintained in accordance with Condition 3.4.1.
- 4.4.6. The permittee shall maintain records of the annual tune-ups as required in Condition 4.1.2.h., i., and k. Such records shall be maintained in accordance with Condition 3.4.1.

4.5. Reporting Requirements

- 4.5.1 The permittee shall submit semiannual reports of exceedances of the venturi scrubbers (CD13A, CD13B, CD13C, CD23A, CD23B, CD 23C, CD23D, and CD24B) operating parameters as established through testing as required in this permit and 40 CFR §60.684(a). Exceedances under this condition is defined as any monitoring data that are less than 70 percent of lowest value or 130% of the highest value of each operating parameter recorded during the most recent performance test. Such reports shall be written and include the corrective action as result of, and records of the quarterly calibration of the monitoring devices for the mentioned control devices. These reports shall be submitted as part of the facility semiannual and annual compliance
[40 CFR §60.684(d)]

5.0. Material Handling and Other Sources Specific Requirements

5.1. Limitations and Standards

- 5.1.1. The following storage devices shall be equipped and operated with the corresponding control devices:

Equipment Number	Description	Control Equipment	Control Number
ES1A	Raw Material Storage Bin (sand)	Whirl-Air Flow Bin-Vent Model 195-42	CD1A
ES1B	Raw Material Storage Bin (borax)	Whirl-Air Flow Bin-Vent Model 195-42	CD1B
ES1C	Raw Material Storage Bin (borax)	Whirl-Air Flow Bin-Vent Model 195-42	CD1B
ES1D	Raw Material Storage Bin (soda ash)	Whirl-Air Flow Bin-Vent Model 195-42	CD1D
ES1E	Raw Material Storage Bin (soda ash)	Whirl-Air Flow Bin-Vent Model 195-42	CD1D
ES1F	Raw Material Storage Bin (aplite)	Whirl-Air Flow Bin-Vent Model 195-42	CD1F
ES1G	Raw Material Storage Bin (lime)	Whirl-Air Flow Bin-Vent Model 195-42	CD1G
ES1H	Raw Material Storage Bin (cullet)	Whirl-Air Flow Bin-Vent Model 195-42	CD1I
ES1I	Raw Material Storage Bin (cullet)	Whirl-Air Flow Bin-Vent Model 195-42	CD1I
ES1J	Raw Material Storage Bin (cullet)	Whirl-Air Flow Bin-Vent Model 195-42	CD1F
ES1K	Raw Material Storage Bin (baghouse dust)	Whirl-Air Flow Bin-Vent Model 55-30	CD1K
ES12A	Batch Mixer Receiving Hopper (1 st & 2 nd Lines)	Whirl-Air Flow Bin-Vent Model 345-56	CD12A
ES22A	Batch Mixers' Receiving Bin (2 nd Line)	IAC Bin-Vent Model No. 96TB-FRIP-48:56 Style 3	CD22A
ES12B	Mixed Batch Backup Storage Day Bin (1 st Line)	Whirl-Air Flow Bin-Vent Model 130-42	CD12D
ES12D	Mixed Batch Storage Day Bin (1 st Line)	Whirl-Air Flow Bin-Vent Model 230-56	CD12C
ES12Db	Mixed Batch Storage Day Bin (1 st Line)	Whirl-Air Flow Bin-Vent Model 265-42	CD12Cb
ES11a	Line 2 Day Bin	TBD	CD11a
ES11b	Line 2 Day Bin	TBD	CD11b

The permittee shall select, install the control devices for Day Bins ES11a and ES11b that has manufacturer's removal efficiency of no less than 99.9% for filterable PM.
[45 CSR 14-8-8.3.]

- 5.1.2. Emission of PM, PM₁₀, and PM_{2.5} from Emission Points EP11a and EP11b shall not exceed 0.016 tons per year from each point. Compliance is satisfied with these limits through maintaining the respective control device and receiving raw materials into bins ES11a and ES11b at a total raw material throughput for both bin of no more than 184 tons per day.
- 5.1.3. The permittee shall install, maintain, and operate the Quentin Keeney Air Tumblers (CD15A), the Fisher Klosterman Scrubber (CD25A) and the bag filter dust collector (CD25B) in such a way that the PM and PM-10 emissions from FP15 do not exceed 0.25 pounds per hour and/or 1.1 tons per year.
- 5.1.4. Emissions of the following pollutants to the atmosphere from the associated emission points shall not exceed the following:

Caterpillar 3406 (Emission Point EP16)		
Pollutant	Maximum Allowable Emission Rate	
	lb/hr	TPY
Particulate Matter	0.58	0.15
Sulfur Dioxide	3.80	0.90
Nitrogen Oxides	9.13	2.3
Carbon Monoxide	4.16	1.0
VOCs	0.10	0.03

Caterpillar 3456 (Emission Point EP17)		
Pollutant	Maximum Allowable Emission Rate	
	lb/hr	TPY
Particulate Matter	0.09	0.03
Sulfur Dioxide	3.80	0.9
Nitrogen Oxides	10.96	2.74
Carbon Monoxide	0.64	0.16
VOCs	0.14	0.04

Cummins NT-855-F1 (Emission Point EP18)		
Pollutant	Maximum Allowable Emission Rate	
	lb/hr	TPY
Particulate Matter	0.60	0.2
Sulfur Dioxide	0.56	0.14
Nitrogen Oxides	8.5	2.10
Carbon Monoxide	1.82	0.50
Volatile Organic Compounds	0.69	0.20

- 5.1.5. The two Caterpillar 3406 (ID. No. ESDG12 and ESDG13) and Cummins NT-855-F1 (ID. No. ESWF11) internal combustion engines shall not operate more than 500 hours per year, calculated as the sum during a consecutive 12-month period.
- 5.1.6. The two Caterpillar 3406 and Cummins NT-855-F1 internal combustion engines shall not consume a fuel with a sulfur content of greater than 0.5 percent by weight
- 5.1.7. The 8.5 MMBTU/hr makeup air handling unit (ID. No. ESSH15), and 7.875 MMBTU/hr air handling unit (ID No. ESSH16) shall only be fired with pipeline quality natural gas.
- 5.1.8. Emissions of the following pollutants to the atmosphere from the 8.5 MMBTU/hr makeup air handling unit (ID. No. ESSH15) shall not exceed the following:

Pollutant	Hourly Emission Rate	Annual Emission Rate
	lb/hr	TPY
Particulate Matter	0.03	0.1
Particulate Matter-10	0.03	0.1
Nitrogen Oxides	0.85	3.7
Carbon Monoxide	0.17	0.8
VOCs	0.05	0.2

- 5.1.9. The following conditions and requirements are specific to generator set identified as ESDG14:
- The generator set shall be used an emergency stationary generator and be limited to non-emergency operation of no more than 100 hours per year. Non-emergency operation shall include maintenance checks and readiness tests. Emergency operation is defined when electric power from the local utility is interrupted.
[40 CFR §60.4211(f)]
 - The generator set shall be equipped with an engine or engine configuration that has been certified by the manufacturer with a NOx emission rate not to exceed 6.21 grams per brake

horsepower at 100% load, and to comply or conform with either 40 CFR §60.4205(b)(2), which referred to 40 CFR §§89.111 and 112 or 40 CFR Part 60.

[40 CFR §§60.4211(a)(3) and (c)(1)]

- c. The permittee shall maintain the engine of the generator set according to the manufacturer's emission-related written instructions.

[40 CFR §60.4211(a)(1)]

- d. The permittee shall only change those emission-related settings of the generator sets that are permitted by the manufacturer.

[40 CFR §60.4211(a)(2)]

- e. The maximum name plate power output of the engine for each generator set shall not be greater than listed in Table 1.0.

- f. The engine will be equipped with a non-resettable hour meter.

- g. The engine shall be fueled only with diesel fuel that has a maximum sulfur content no greater than 15 ppm (ultra-low sulfur diesel) and with either a minimum centane index of 40 or a maximum aromatic content of 35 volume percent. Diesel meeting the specifications of Nonroad diesel under 40 CFR §80.510(b) is recognized as acceptable diesel fuel with regards to this fuel specification.

[40 CFR §§60.42c(d), 40 CSR §10-3.3.f., 40 CFR §60.4207(b), 45 CSR 14-8-8.3.]

- 5.1.10. The conditions and requirements in the following subdivisions are specific to the mechanical draft cooling towers (ID #CT3, CT4, and CT5):

- a. Emissions of PM, PM₁₀, and PM_{2.5} shall be controlled with a 0.005% drift eliminator or an equivalent control technology.

[45 CSR 14-8-8.3.]

- b. PM emissions emitted to the atmosphere from each cooling tower shall not exceed 0.05 lb/hr and 0.20 TPY.

- c. PM₁₀ and PM_{2.5} emissions emitted to the atmosphere from each cooling tower shall not exceed 0.04 lb/hr and 0.17 TPY.

- d. Make-up water for the cooling system shall be supplied by the local public water system. If water from any other source than the local public water system is added to the cooling system, the permittee shall annually sample and determine the total dissolved solids content less than 750 ppm by weight.

- 5.1.11. The permittee shall install and maintain an industrial fence around this permitted facility as outlined in the December 19, 2016 submittal of the Prevention of Significant Deterioration Air Quality Dispersion Modeling Report. This industrial fence shall construct in such a manner to prevent the general public from accessing this permitted facility.

- 5.1.12. The permittee shall, to the extent practicable, install, maintain, and operate all pollution control equipment listed in Section 1.0 and associated monitoring equipment in a manner consistent with safety and good air pollution control practices for minimizing emissions, or comply with any more stringent limits set forth in this permit or as set forth by any State rule, Federal regulation, or alternative control plan approved by the Secretary.

[45CSR§13-5.11.]

5.2. Monitoring Requirements

- 5.2.1. For the purpose of demonstrating compliance with the hours of operation limits in Condition 5.1.5 and 5.1.9., the permittee shall record the number of hours each generator set is operated during the calendar month and the reason for such operation. Such records shall be maintained in accordance with Condition 3.4.1.
[40 CFR §60.4211(f)]
- 5.2.2. Records of water sampling from the cooling system, if required to be sampled by Condition 5.1.10.d. shall be maintained in accordance with Condition 3.4.1.
- 5.2.3. The permittee shall maintain daily records of the amount of raw material received into storage bins ES11a and ES11b for the purpose of demonstrating compliance with Condition 5.1.2. Such records shall be maintained in accordance with Condition 3.4.1.

5.3. Testing Requirements

[Reserved]

5.4. Recordkeeping Requirements

- 5.4.1. **Record of Monitoring.** The permittee shall keep records of monitoring information that include the following:
 - a. The date, place as defined in this permit, and time of sampling or measurements;
 - b. The date(s) analyses were performed;
 - c. The company or entity that performed the analyses;
 - d. The analytical techniques or methods used;
 - e. The results of the analyses; and
 - f. The operating conditions existing at the time of sampling or measurement.
- 5.4.2. **Record of Maintenance of Air Pollution Control Equipment.** For all pollution control equipment listed in Section 1.0, the permittee shall maintain accurate records of all required pollution control equipment inspection and/or preventative maintenance procedures.
- 5.4.3. **Record of Malfunctions of Air Pollution Control Equipment.** For all air pollution control equipment listed in Section 1.0, the permittee shall maintain records of the occurrence and duration of any malfunction or operational shutdown of the air pollution control equipment during which excess emissions occur. For each such case, the following information shall be recorded:
 - a. The equipment involved.
 - b. Steps taken to minimize emissions during the event.
 - c. The duration of the event.
 - d. The estimated increase in emissions during the event.

For each such case associated with an equipment malfunction, the additional information shall also be recorded:

- e. The cause of the malfunction.
 - f. Steps taken to correct the malfunction.
 - g. Any changes or modifications to equipment or procedures that would help prevent future recurrences of the malfunction.
- 5.4.4. The permittee shall maintain records of sulfur content of the fuel oil received and/or vendors contractual sulfur specifications for the fuel oil.

5.5. Reporting Requirements

[Reversed]

CERTIFICATION OF DATA ACCURACY

I, the undersigned, hereby certify that, based on information and belief formed after reasonable inquiry, all information contained in the attached _____, representing the period beginning _____ and ending _____, and any supporting documents appended hereto, is true, accurate, and complete.

Signature¹

(please use blue ink)

Responsible Official or Authorized Representative

Date

Name & Title

(please print or type)

Name

Title

Telephone No. _____

Fax No. _____

¹ This form shall be signed by a "Responsible Official." "Responsible Official" means one of the following:

- a. For a corporation: The president, secretary, treasurer, or vice-president of the corporation in charge of a principal business function, or any other person who performs similar policy or decision-making functions for the corporation, or a duly authorized representative of such person if the representative is responsible for the overall operation of one or more manufacturing, production, or operating facilities applying for or subject to a permit and either:
 - (i) the facilities employ more than 250 persons or have a gross annual sales or expenditures exceeding \$25 million (in second quarter 1980 dollars), or
 - (ii) the delegation of authority to such representative is approved in advance by the Director;
- b. For a partnership or sole proprietorship: a general partner or the proprietor, respectively;
- c. For a municipality, State, Federal, or other public entity: either a principal executive officer or ranking elected official. For the purposes of this part, a principal executive officer of a Federal agency includes the chief executive officer having responsibility for the overall operations of a principal geographic unit of the agency (e.g., a Regional Administrator of U.S. EPA); or
- d. The designated representative delegated with such authority and approved in advance by the Director.