

Facility Name: **Johns Manville Corp. Winder Facility**

City: Winder

County: Barrow

AIRS #: 04-13-013-00005

Application #: 14422

Date SIP Application Received: April 10, 2003

Date Title V Application Received: April 10, 2003

Permit No: 3296-013-0005-V-01-0

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Introduction

This narrative is being provided to assist the reader in understanding the content of the referenced SIP permit to construct and draft operating permit amendment. Complex issues and unusual items are explained in simpler terms and/or greater detail than is sometimes possible in the actual permit. This permit is being issued pursuant to: (1) Sections 391-3-1-.03(1) and 391-3-1-.03(10) of the Georgia Rules for Air Quality Control, (2) Part 70 of Chapter I of Title 40 of the Code of Federal Regulations, and (3) Title V of the Clean Air Act Amendments of 1990. The following narrative is designed to accompany the draft permit and is presented in the same general order as the permit. This narrative is intended only as an adjunct for the reviewer and has no legal standing. Any revisions made to the permit in response to comments received during the public comment period and EPA review process will be described in an addendum to this narrative.

I. Facility Description**A. Existing Permits**

Table 1 below lists the current Title V permit, and all administrative amendments, minor and significant modifications to that permit, and 502(b)(10) attachments. Comments are listed in Table 2 below.

Table 1: Current Title V Permit and Amendments

Permit/Amendment Number	Date of Issuance	Comments	
		Yes	No
3296-13-0005-V-01-0	December 19, 2002	X	

Table 2: Comments on Specific Permits

Permit Number	Comments
3296-13-0005-V-01-0	This is the initial Title V permit for Johns Manville.

B. Regulatory Status**1. PSD/NSR/RACT**

The Johns Manville Winder Plant is currently a “major” source under the PSD rules for PM, PM₁₀, NO_x, CO and VOCs.

2. Title V Major Source Status by Pollutant**Table 3: Title V Major Source Status**

Pollutant	Is the Pollutant Emitted?	If emitted, what is the facility's Title V status for the Pollutant?		
		Major Source Status	Major Source Requesting SM Status	Non-Major Source Status
PM	Yes	X		
PM ₁₀	Yes	X		
SO ₂	Yes			X
VOC	Yes	X		
NO _x	Yes	X		
CO	Yes	X		
TRS	N/A			
H ₂ S	N/A			
Individual	Yes			X

Table 3: Title V Major Source Status

Pollutant	Is the Pollutant Emitted?	If emitted, what is the facility's Title V status for the Pollutant?		
		Major Source Status	Major Source Requesting SM Status	Non-Major Source Status
HAP				
Total HAPs	Yes			X

II. Proposed Operational Change

A. Description of Operational Change

The facility has requested permission to introduce an oxidation-reduction (or reducing) agent into the Line #106 melters to reduce damage to the melter electrodes and walls from oxidation. See Section 1.2 of the PSD Preliminary Determination (called the "Preliminary Determination" hereafter) for further details concerning this modification.

B. Emissions Change

The facility is asking that EPD authorize an increase in the emissions of CO from the melters from 1.277 pounds per hour (lb/hr) to 9.122 lb/hr and an increase in SO₂ emissions by approximately 4.1 lb/hr. See the Summary and Section 1.3 of the Preliminary Determination for further discussion on these emission limit changes.

C. PSD/NSR Applicability

The addition of the new reducing agent will be done with existing equipment that is currently not being used. There will be minimal physical construction necessary to utilize this equipment; therefore this project does not constitute a physical change. Minor changes to raw materials in the mixture for these types of process are a common practice. The operation of the oxidation-reduction agent injection system and the consequent capability to increase the use of cullet glass would itself be considered a minor modification (i.e. minor operational change) with respect to PSD regulations per Georgia Air Quality Control Regulation 391-3-1-.02(7). However, a PSD permit is needed, including a Preliminary Determination, because the CO BACT limit for the Line #106 melters must be increased. NOTE that previous PSD requirements related to other Line 106 equipment will not be revisited in this permit review.

III. Facility Wide Requirements

A. Emission and Operating Caps:

Condition 3.3.7 was modified to change the CO emissions limit for Stack 630P in Table 3.3.a, which services emission units 631E and 632E (Line #106 melters), from 1.277 pounds per hour to 9.122 pounds per hour. The CO limit contained in this table is the BACT limit, which is discussed in the Preliminary Determination.

The emissions of CO and SO₂ are related to the amount of oxidation-reduction agent and raw materials that contain sulfur (mostly in the recycled glass and some in the reducing agent) injected into the melters. The main purpose of adding the reducing agent is to remove O₂ from the melter, which will increase the reliability and life of the melters. The O₂ in the molten material tends to attack (via oxidation) the sides of the melter and the electrodes, which contain chromium and other metals for the purpose of conducting the electrical charge for heating the glass.

Condition 3.4.5 was modified. The original PSD analysis did not review sulfur dioxide increases, since it was assumed that gaseous fuels were to be used. However, the permit did not specify that; therefore the condition has been modified to reflect the type of fuel used. Gaseous fuels, especially (sweet) natural gas, usually contains less than 0.01 weight percent sulfur; therefore meeting the sulfur specification limits contained in State Rule (g) is easily done. Old Condition 3.4.5 had merely restated State Rule (g), which specifies that fuel-burning equipment cannot burn fuel with sulfur content greater than 2.5 weight %.

For further discussion concerning each permit condition revised or added to this permit see the "Explanation of Permit Conditions" table found in Section 6.0 of the Preliminary Determination.

B. Applicable Rules and Regulations

The main rule that is applicable to the modification is PSD. Section 3.0 of the Preliminary Determination contains a detailed discussion of the monitoring, modeling, modeling significance analysis, ambient air quality analysis, increment consumption and impacts on Class 1 areas. These analyses will not be repeated here. Section 5.0 of the Preliminary Determination contains a discussion of other applicable rules, which are summarized below.

Federal Rules

NSPS

Line 106 is subject to Subpart PPP, *Standards of Performance for Wool Fiberglass Insulation Manufacturing Plants*.¹ Subpart PPP applies to rotary spin wool fiberglass insulation manufacturing lines that commence construction, modification, or reconstruction after February 7, 1984. The modified fiberglass line will continue to be subject to NSPS Subpart PPP. Principally, this regulation limits particulate matter emissions from the manufacturing line to 11.0 lb/ton of glass pulled. Since the proposed modification will not effect PM emissions, there

¹ 40 CFR 60.680.

will be no change in applicability and therefore no additional requirements or changes to existing conditions related to the NSPS as a result of the modification

NESHAPS

Wool fiberglass plants are subject to the National Emission Standards for Hazardous Air Pollutant (NESHAP) 40 CFR 63.1380 (Subpart NNN) if they are a major source of HAPs. Johns Manville converted from phenol / formaldehyde based resin to acrylic based resins before the Title V permit was issued on December 19, 2002. It now has no phenol / formaldehyde from resins and is now a minor source of HAPs. This means that the facility is no longer subject to Subpart NNN. The Title V permit therefore contains no NESHAP requirements.

State Rules

Rule (b)

Visible emissions from the equipment are regulated by Rule 391-3-1-.02(2)(b). Opacity from all emission units including the melters will be limited to 40%. The emission units on fiberglass line 106 are all well controlled and exhausts will have normal opacities far below this SIP limit.

Rule (d)

The opacity limits under Rule 391-3-1-.02(2)(d), *Fuel Burning Equipment*, are not applicable to the process because, as defined in 391-3-1-.01(cc), in the new fiberglass line, the natural gas burners in the collection modules supply process heat directly. The facility does have support equipment such as space heaters and hot-water heaters that are subject to Rule (d); these are included as insignificant activities in the Title V Appendix .

Rule (e)

The proposed manufacturing line is subject to Rule 391-3-1-.02(2)(e), *Particulate Emissions from Manufacturing Processes* and Rule 391-3-1-.02(2)(n), *Fugitive Dust*. *Rule (e)*, limits particulate emissions from equipment to a rate proportional to the equipment's process mass input rate. This rule is unimportant here since the BACT limits for particulate matter for the Line #106 sources are all more stringent than those under *Rule (e)*.

Rule (n)

Air Quality Rule 391-3-1-.02(2)(n) is a general provision requiring facilities to take reasonable precautions to prevent fugitive dust. The roads to this facility are paved and most activities are performed under cover of the main building. Most particulate matter emission sources at the facility are controlled by an air pollution control device; therefore it is unlikely there will be a fugitive dust problem at this facility.

Rule (oo)

Air Quality Rule 391-3-1-.02(2)(oo) regulates particulate matter emissions from Fiberglass Insulation Manufacturing Plants. Certain process units installed on Line #106 are subject to this rule. These include the Collection Modules (641E, 642E, 643E, 644E) and the Curing Oven (654E), but not the melters. Therefore the changes proposed by this application will not affect Rule (oo) applicability and limits.

C. Compliance Status

The facility has indicated, in their Title V permit application (dated April 4, 2003), that it is operating in compliance with all air quality regulations and requirements. The Compliance program has issued a Notice of Violation (NOV), dated November 25, 2003. The NOV is for record keeping and monitoring deficiencies. No compliance schedule has been set.

D. Operational Flexibility

None requested

E. Permit Conditions

There are no new conditions that will be added to Part 2.0 of the Title V permit as a result of this modification.

IV. Regulated Equipment Requirements

A. Brief Process Description

This facility manufactures wool fiberglass and the main pieces of equipment impacted by this modification are the glass melters on Line #106. This is in manufacturing step number 2 of Table 4 below.

Table 4** Process Line #106 System Outline and the Manufacturing Steps

System	Manufacturing Step	Description
General Bulk Raw Material Handling for Plant and Line #106 Preparation	1	*Bulk Raw material handling, storage and preparation
	2	Creating the molten glass
Line #106 Forming and Curing	3	Formation of the fibers, application of the binder, and mat formation
	4	Curing the binder-coated fiberglass
	5	Cooling the mat
Line #106 Finishing, Handling, and Packaging	6	Backing, cutting, and packaging
*The bulk handling and storage equipment is existing equipment and is shared between the new 106 line and older 105 line.		
**This is Table 2 in the PSD Preliminary Determination.		

There are many formulas for glass making². The raw materials used in typical fiberglass making processes include materials contained in Table 5 below:

Table 5		
Typical formula for soda-lime silicate glass		
Material	Purpose	Percentage in mixture
Silica	Former	70-75%
Soda Ash	Flux	14-18%
Lime	Stabilizer	4-6%
Magnesia	Impurity**	3-4%
Alumina	Impurity**	1-2%
Potash	Impurity**	0.5-1%
Cullet	Reduce cost of making glass.	5-30%

² A good source of general information on glass manufacturing and raw materials are the Corning Museum of Glass [<http://www.cmog.org/>], the National Institute of Standards and Testing [<http://www.ceramics.nist.gov/srd/summary/glssil.htm>], and the web sight: Glass-on-line <http://www.glassonline.com/dictionary/>.

Table 5		
Typical formula for soda-lime silicate glass		
Material	Purpose	Percentage in mixture
**Impurities give glass certain mechanical, color and thermal properties.		

The percentages given in Table 5 are typical values for soda-lime silica glass making; the exact formula used by the facility is kept confidential. Generally the main material that forms (i.e. the former) the glass is Silica or Silicon Dioxide (SiO₂). The purpose of Flux (Na₂O) is to lower the temperature at which the former will melt. The stabilizer (CaO) makes the glass stronger and water resistant. Cullet, which is ground up recycled glass, is cheaper to buy than the raw materials and also melts at a lower temperature than the raw materials. The impurities added give the fiberglass other properties the facility wants in its final product. Note that this permit amendment is regarding the addition of a reducing agent to this mix. This is not to change a product characteristic, but to allow them to make the product more efficiently and economically. Among other things, it allows the increased use of cullet, which will reduce their need for costly raw materials. This allows the facility to utilize waste glass that would otherwise end up in a landfill. The cullet comes from both outside and inside the company. Most is from the plate glass industry.

See Section 1.0 of the Preliminary Determination for further details concerning the process.

B. Equipment List for the Process

Modified Portions of Table 3.1a of the Title V Permit.

Emission Units		Specific Limitations/Requirements		Air Pollution Control Devices	
ID No.	Description	Applicable Requirements/Standards	Corresponding Permit Conditions	ID No.	Description
554E	Line 105 Curing Oven Installed 1977	40 CFR 60 Subpart PPP, 40 CFR 52.21 Avoidance, 391-3-1-.02(2)(oo), 391-3-1-.02(2)(b), 391-3-1-.02(2)(g)	3.3.7, 3.3.8, 3.3.9, 3.3.10, 3.3.11, 3.4.2, 3.4.3, 3.4.5, 5.2.2, 5.2.9, 6.1.7	554C	High efficiency air filter (HEAF), a moving media flat filter system. Anderson Model DF-44 Installed 1999
620E	Line 106 Mixer	40 CFR 52.21, 391-3-1-.02(2)(b), 391-3-1-.02(2)(e)	3.4.3, 3.4.4, 4.2.7, 5.2.1	620C	Baghouse
621E	Line 106 Receiver Installed 1999	40 CFR 52.21, 391-3-1-.02(2)(b), 391-3-1-.02(2)(e)	3.3.7, 3.4.3, 3.4.4, 4.2.5, 4.2.6, 4.2.7, 4.2.8, 5.2.1, 5.2.2, 5.2.5, 5.2.8, 5.2.14, 5.3.4, 6.1.7	621C	Baghouse
622E	Line 106 Cullet Bin Installed 1999	40 CFR 52.21, 391-3-1-.02(2)(b), 391-3-1-.02(2)(e)	3.3.7, 3.4.3, 3.4.4, 5.2.2, 5.2.5, 5.2.8, 6.1.7	622C	Baghouse
623E	Line 106 Day Bin (Melter 1) Installed 1999	40 CFR 52.21, 391-3-1-.02(2)(b), 391-3-1-.02(2)(e)	3.3.7, 3.4.3, 3.4.4, 5.2.2, 5.2.5, 5.2.8, 5.3.4, 6.1.7	623C	Baghouse

624E	Line 106 Day Bin (Melter 2) Installed 1999	40 CFR 52.21, 391-3-1-.02(2)(b), 391-3-1-.02(2)(e)	3.3.7, 3.4.3, 3.4.4, 5.2.2, 5.2.5, 5.2.8, 5.3.4, 6.1.7	624C	Baghouse
631E	Line 106 Melter 1 Installed 1999	40 CFR 52.21, 391-3-1-.02(2)(b), 391-3-1-.02(2)(e)	3.3.7, 3.4.3, 3.4.4, 4.2.1, 4.2.2, 4.2.3, 4.2.4, 4.2.5, 4.2.6 4.2.7, 4.2.8, 4.2.9, 4.2.10, 5.2.1, 5.2.2, 5.2.5, 5.2.11, 5.2.13, 5.2.14, 5.3.4, 6.1.7, 6.2.3, 6.2.4, 6.2.5	631C	Baghouse
632E	Line 106 Melter 2 Installed 1999	40 CFR 52.21, 391-3-1-.02(2)(b), 391-3-1-.02(2)(e)	3.3.7, 3.4.3, 3.4.4, 4.2.1, 4.2.2, 4.2.3, 4.2.4, 4.2.5, 4.2.6 4.2.7, 4.2.8, 4.2.9, 4.2.10, 5.2.1, 5.2.2, 5.2.5, 5.2.11, 5.2.13, 5.2.14, 5.3.4, 6.1.7, 6.2.3, 6.2.4, 6.2.5	632C	Baghouse

C. Equipment & Rule Applicability

In Section III.B of this narrative review, the applicable rules and regulations are discussed. As mentioned in that section of the review, the main regulation that this amendment is concerned with is PSD. The most important single change is the increased emissions from the melters above the PSD BACT limit for CO and the increased SO₂ emissions less than the PSD significance level.

See Sections 1.0, 5.0 and 6.0, which contains the “Explanation for Draft Permit Amendment Conditions” table.

D. Compliance Status

No Section 11.10 forms were submitted with this application. The Compliance Program issued a Notice of Violation (NOV), dated November 25, 2003. The NOV is for record-keeping and monitoring deficiencies. No compliance schedule has been set.

E. Operational Flexibility

None requested

F. Permit Conditions

Because the emission limit for CO had to be increased, testing, monitoring, record keeping and reporting conditions were revised or added to the permit. For specific explanations, please see “Explanation for Draft Permit Amendment Conditions” table found in Section 6.0 of the Preliminary Determination.

V. Testing Requirements (with Associated Record Keeping and Reporting)**A. Individual Equipment:**

Conditions requiring initial testing for CO and SO₂ from the melters have been added to the Title V permit the melters must be tested for CO and SO₂ within 120 days of the change. The facility will further test CO and SO₂ if larger amounts of oxidation-reduction agent are needed to be injected to the melters than was used during the initial performance test for CO and SO₂. No further testing will be required due to the expected large margin of compliance between the limit and actual emissions; the initial testing will verify this.

See the “Explanation for Draft Permit Amendment Conditions” table found in Section 6.0 of the Preliminary Determination, for further details concerning the specific testing requirements.

B. Equipment Groups (all subject to the same test requirements):

None

VI. Monitoring Requirements (with Associated Record Keeping and Reporting)**A. Individual Equipment:**

Conditions related to monitoring equipment and methods related to showing compliance with limits in the permit, due to the increases in CO and SO₂, are included in the permit.

Because CO emission are directly related to the addition of the oxygen-reduction agent being added to the melters and due to the large margin of compliance expected, it will not be necessary to monitor CO emissions directly. Condition 5.2.1 was modified to add a glass pull rate monitor. This monitor is existing equipment used by the facility to measure the rate and performance of their product lines.

No continuous monitoring related to SO₂ emissions is proposed or needed. Sulfur content of the raw materials used will be determined as part of the initial testing for SO₂ emissions from the melters to verify the assumptions used in the decision not to require monitoring.

See the “Explanation for Draft Permit Amendment Conditions” table found in Section 6.0 of the Preliminary Determination, for further details concerning the specific monitoring and record keeping requirements.

B. Equipment Groups (all subject to the same monitoring requirements):

None

VII. Other Record Keeping and Reporting Requirements**B. Specific Record Keeping Requirements**

New Condition 6.2.3 requires the facility to analyze and record the sulfur content of each raw material injected into the melter during performance tests for CO and SO₂ on the melters. Samples of the raw material are taken from each raw material and analyzed. The Condition does not specify the method to be used but specifies it must be acceptable to the Division. If the facility is able to obtain sulfur content from the vender, then that can be used instead.

New Condition 6.2.4 contains a requirement for the facility to maintain an operators log to record whenever a valved section of pipe (spool piece) on the oxidation-reduction agent addition system was changed. This spool piece is used by the facility to introduce specific amounts of oxidation-reduction agent to the system in a batch. The larger the spool piece volume the more oxidation-reduction agent is added per batch. The facility has several spool pieces that have been calibrated to introduce a specific amount of material.

New Condition 6.2.5 contains a requirement for the facility to maintain an operators log to record whenever the mass amount of the total batch or cullet material added per batch is changed.

VIII. Specific Requirements

A. Operational Flexibility

Not Applicable

B. Alternative Requirements

Not Applicable

C. Insignificant Activities

No new insignificant activities were constructed as part of this permit amendment, but several pieces of existing fuel burning equipment, that were incidentally left off the original Title V permit, were included in the "GENERIC EMISSION GROUPS" table of this permit amendment. Table 6 below is a listing of the equipment added.

Source ID	Unit Description	Specifications	Applicable Rules	APCD ID	APCD Description
80	Maintenance Area Hot Water Heater	0.35x10 ⁶ Btu/hr heat input firing NG Installed after 1972	391-3-1-.02(2)(d), 391-3-1-.02(2)(g)	None	None
83	Maintenance Area Space Heater (indirect heating)	0.44x10 ⁶ Btu/hr heat input firing NG Installed after 1972	391-3-1-.02(2)(d), 391-3-1-.02(2)(g)	None	None
84	Production Heater	10.31x10 ⁶ Btu/hr heat input firing NG Installed 1978	391-3-1-.02(2)(b), 391-3-1-.02(2)(g)	None	None
85	Production Heater	0.4x10 ⁶ Btu/hr heat input	391-3-1-.02(2)(b), 391-3-1-.02(2)(g)	None	None
86	Production Heater	0.4x10 ⁶ Btu/hr heat input	391-3-1-.02(2)(b), 391-3-1-.02(2)(g)	None	None
87	Production Heater	0.4x10 ⁶ Btu/hr heat input	391-3-1-.02(2)(b), 391-3-1-.02(2)(g)	None	None
H088	Main warehouse building HVAC direct gas-fired space heater ID# 88	8.8x10 ⁶ Btu/hr heat input firing NG Installed 1970	391-3-1-.02(2)(b), 391-3-1-.02(2)(g)	None	None
H089	Main warehouse building HVAC direct gas-fired space heater ID# 89	8.8x10 ⁶ Btu/hr heat input firing NG Installed 1970	391-3-1-.02(2)(b), 391-3-1-.02(2)(g)	None	None
H090	Main warehouse building HVAC direct gas-fired space heater ID# 90	10.31x10 ⁶ Btu/hr heat input firing NG Installed 1970	391-3-1-.02(2)(b), 391-3-1-.02(2)(g)	None	None
H091	Main warehouse building HVAC direct gas-fired space heater ID# 91	10.31x10 ⁶ Btu/hr heat input firing NG Installed 1970	391-3-1-.02(2)(b), 391-3-1-.02(2)(g)	None	None
H092	Main warehouse building HVAC direct gas-fired space heater ID# 92	10.31x10 ⁶ Btu/hr heat input firing NG Installed 1978	391-3-1-.02(2)(d), 391-3-1-.02(2)(g)	None	None
H093	Main warehouse building HVAC direct gas-fired space heater ID# 93	10.31x10 ⁶ Btu/hr heat input firing NG Installed 1978	391-3-1-.02(2)(d), 391-3-1-.02(2)(g)	None	None

The equipment designated as "INSIGNIFICANT ACTIVITIES BASED ON EMISSION LEVELS" in the Title V application were left off the original Title V permit. Equipment such as the process water storage / surge tanks, vaporizers, cooling towers battery charger station and inking station. Those that belong in this table were included in this revision to the Title V permit. See Section 6.0 of the Preliminary Determination for further discussion concerning these emission units.

D. Temporary Sources

None

E. Short-Term Activities

None

F. Compliance Schedule/Progress Reports

The Compliance program has issued a Notice of Violations (NOV), dated November 25, 2003. The NOV is for record keeping and monitoring deficiencies. No compliance schedule has been set.

G. Emissions Trading

None

H. Acid Rain Requirements

None

I. Prevention of Accidental Releases

No Change

J. Stratospheric Ozone Protection Requirements

No Change

K. Pollution Prevention

No change

L. Specific Conditions

None

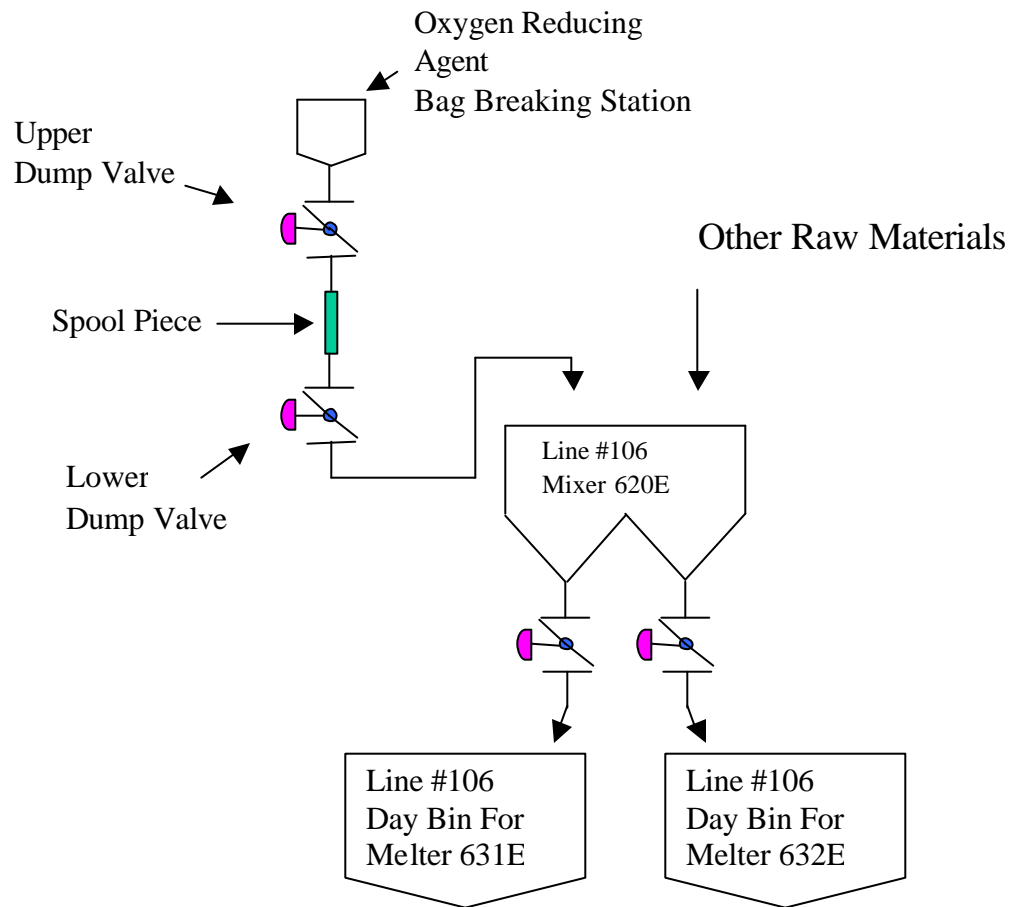
Attachment A**Diagram and discussion of the oxygen-reduction agent addition system**

The oxygen-reduction (or reducing) agent is delivered in 50 pound paper bags to the facility. Plant personnel manually load these bags onto the bag breaking station (i.e. the supply hopper of the oxygen-reduction agent injection system). The station contains a bin large enough to hold the contents of several bags. The system used to meter the agent utilizes gravity and physical dimensions. There are two possible methods of changing the flow rate:

- (1) The Upper and Lower Dump valves are opened using a constant timing cycle. The facility can then swap out different size spool pieces to increase or reduce the amount of agent that is introduced to the Line #106 receiver bin.
- (2) The second method is to change the cycle timing of the Upper and Lower Dump valves.

Once the reducing agent goes into the Line #106 Mixer Bin, emission unit 620E, it is mixed in with all the other raw materials before being sent to one of the two melters at the desired rate.

Figure A1
Simple Diagram of the oxygen-reduction agent delivery system



Addendum to Narrative

There were no comments made by the EPA or the public concerning Title V permit amendment during the Title V comment period. Comments received during the PSD review, which preceded the Title V review, from EPA and the public were included in the PSD Final Determination. None of these comments affected the Title V permit.