



OCT 18 2012

Kyle Sword
Pilkington North America, Inc.
500 E Louise Ave
Lathrop, CA 95330

**Re: Proposed Authority to Construct / Certificate of Conformity (Minor Mod)
District Facility # N-477
Project # N-1121257**

Dear Mr. Sword:

Enclosed for your review is the District's analysis of your application for Authority to Construct for the facility identified above. You have requested that a Certificate of Conformity with the procedural requirements of 40 CFR Part 70 be issued with this project. This project is to incorporate the District Rule 4354 tier 4 early enhanced option requirements into the permit for a glass furnace.

After addressing any EPA comments made during the 45-day comment period, the Authority to Construct will be issued to the facility with a Certificate of Conformity. Prior to operating with modifications authorized by the Authority to Construct, the facility must submit an application to modify the Title V permit as an administrative amendment, in accordance with District Rule 2520, Section 11.5.

If you have any questions, please contact Mr. Rupi Gill, Permit Services Manager, at (209) 557-6400.

Thank you for your cooperation in this matter.

Sincerely,

David Warner
Director of Permit Services

DW:JH/st

Enclosures

Seyed Sadredin
Executive Director/Air Pollution Control Officer

Northern Region
4800 Enterprise Way
Modesto, CA 95356-8718
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OCT 18 2012

Gerardo C. Rios, Chief
Permits Office
Air Division
U.S. EPA - Region IX
75 Hawthorne St
San Francisco, CA 94105

Re: **Proposed Authority to Construct / Certificate of Conformity (Minor Mod)**
District Facility # N-477
Project # N-1121257

Dear Mr. Rios:

Enclosed for your review is the District's engineering evaluation of an application for Authority to Construct for Pilkington North America, Inc., located at 500 E Louise Ave in Lathrop, CA, which has been issued a Title V permit. Pilkington North America, Inc. is requesting that a Certificate of Conformity, with the procedural requirements of 40 CFR Part 70, be issued with this project. This project is to incorporate the District Rule 4354 tier 4 early enhanced option requirements into the permit for a glass furnace.

Enclosed is the engineering evaluation of this application, a copy of the current Title V permit, and proposed Authority to Construct # N-477-10-12 with Certificate of Conformity. After demonstrating compliance with the Authority to Construct, the conditions will be incorporated into the facility's Title V permit through an administrative amendment.

Please submit your written comments on this project within the 45-day comment period that begins on the date you receive this letter. If you have any questions, please contact Mr. Rupi Gill, Permit Services Manager, at (209) 557-6400.

Thank you for your cooperation in this matter.

Sincerely,



David Warner
Director of Permit Services

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San Joaquin Valley Air Pollution Control District
Authority to Construct
Application Review
Modification of Glass Furnace

Facility Name:	Pilkington North America, Inc.	Date:	September 24, 2012
Mailing Address:	500 E. Louise Ave. Lathrop, CA 95330	Engineer:	James Harader
Contact Person:	Kyle Sword	Lead Engineer:	Nick Peirce
Telephone:	(209) 858-6331		
Application #'s:	N-477-10-12		
Project #:	N-1121257		
Deemed Complete:	July 10, 2012		

I. Proposal

In 2009, Pilkington was issued an Authority to Construct permit (N-477-10-10) to comply with the Tier 4 standard option NO_x, SO_x, and PM₁₀ Rule 4354 limits by installing a dry SO_x scrubber, dry electrostatic precipitator, and a selective catalytic reduction system by January 1, 2014. Additionally, in that project, Pilkington requested to remove the 3R NO_x control system requirements, to install a permit-exempt cooling tower, and to establish the maximum glass pull rate (tons/day). Pilkington never submitted an application to comply with the Tier 3 Rule 4354 limits, as they planned to comply with the Tier 4 standard option limits prior to the Tier 3 deadline, which was January 1, 2011. Finally, in 2009, Pilkington opted not to request the Tier 4 enhanced option, which allows an operator that complied with the Tier 3 deadline to delay complying with the Tier 4 requirements until January 1, 2018 if the operator proposes to meet the Rule 4354 enhanced NO_x emission limits.

In September 2010, District Rule 4354 was modified to include an early enhanced option. The early enhanced option allows an operator to skip complying with the Tier 3 requirements if the operator proposes to meet the enhanced NO_x limits early, by January 1, 2014. District Rule 4354 required the operator to submit a written request by January 1, 2011 if they are proposing to comply with the early enhanced option. A copy of the facilities request for the early enhanced option and the District's response is included in Appendix VIII of this document.

This Authority to Construct project is to adopt the early enhanced option limits into the permit by installing the control equipment listed earlier, to install the permit-exempt cooling tower, to remove the 3R NO_x control system requirements, and to establish the maximum glass pull rate (in tons/day). Authority to Construct N-477-10-10, for the Rule 4354 standard option, will not be implemented. Therefore, the following condition will be included on the new Authority to Construct:

- *Upon the implementation of Authority to Construct N-477-10-12, Authority to Construct N-477-10-10 shall be cancelled. [District Rule 2201]*

Title V

Pilkington currently has a Title V permit. This modification can be classified as a Title V minor modification pursuant to District Rule 2520, Section 3.20, and can be processed with a Certificate of Conformity (COC). Since the facility has specifically requested that this project be processed in that manner, the 45-day EPA comment period will be satisfied prior to the issuance of the Authority to Construct. Pilkington must apply to administratively amend their Title V Operating Permit to include the requirements of the ATCs issued with this project.

II. Applicable Rules

Rule 1080	Stack Monitoring (12/17/92)
Rule 1081	Source Sampling (12/16/93)
Rule 2020	Exemptions (8/18/11)
Rule 2201	New and Modified Stationary Source Review Rule (4/21/11)
Rule 2520	Federally Mandated Operating Permits (6/21/01)
Rule 4001	New Source Performance Standards (4/14/99)
Rule 4002	National Emissions Standards for Hazardous Air Pollutants (5/20/04)
Rule 4101	Visible Emissions (2/17/05)
Rule 4102	Nuisance (12/17/92)
Rule 4201	Particulate Matter Concentration (12/17/92)
Rule 4202	Particulate Matter Emission rate (12/17/92)
Rule 4301	Fuel Burning Equipment (12/17/92)
Rule 4354	Glass Melting Furnaces (5/19/11)
Rule 4801	Sulfur Compounds (12/17/92)
CH&SC 41700	Health Risk Assessment
CH&SC 42301.6	School Notice
40 CFR Part 64	Compliance Assurance Monitoring
Public Resources Code 21000-21177:	California Environmental Quality Act (CEQA)
California Code of Regulations, Title 14, Division 6, Chapter 3, Sections 15000-15387:	CEQA Guidelines

III. Project Location

This equipment is located at 500 E Louise Ave in Lathrop, CA and the District has confirmed that this equipment is not located within 1,000 feet of a K-12 School.

IV. Process Description

Float glass is made by melting raw materials, typically consisting of sand, soda ash (sodium carbonate), dolomite, limestone, and salt cake (sodium sulfate). The raw materials are mixed and fed into a natural gas-fired furnace operating at a temperature of 2012°F. The raw materials, referred to as batch, blend together to form a pool of molten glass. The molten glass is fed into a bath of molten tin through a delivery canal. The glass flows out onto the tin surface forming a floating ribbon with perfectly smooth glossy surfaces on both sides. As the glass flows along the tin bath, the temperature is gradually reduced until the sheet can be lifted from the tin onto rollers and into the Lehr, where it is further cooled gradually to prevent strain and stress cracks. The glass is cut by machines, as it exits the cold end of the furnace. Please refer to Appendix III of this document for a process flow diagram.

Glass Furnace Process Rates:

Glass Melting Furnace Process Rate Information	
Primary Fuel	Natural Gas
Backup Fuel	LPG
Furnace Fill Rate (tons/day)	750 (Per Project N-1082218)
Maximum Daily Glass Pull Rate (tons/day)	630 (Per Project N-1082218)
Maximum 12-Month Glass Pull rate (tons/year)	219,000 Per Project N-1082218
Maximum Daily Fuel Usage Rates	Natural Gas: 5,942,875 scf LPG: 64,066 gallons

Operating Schedule:

This furnace is expected to operate 24 hours/day, 365 days/year.

V. Equipment Listing

Pre-Project Equipment Description:

N-447-10-8: 200 MMBTU/HR GLASS MELTING FURNACE WITH ECLIPSE COMBUSTION MODEL WRSP10.XX LOW NOX BURNERS AND 3R NOX EMISSIONS CONTROL SYSTEM

Post Project Equipment Description:

N-447-10-12: 200 MMBTU/HR FLAT GLASS MELTING FURNACE WITH ECLIPSE COMBUSTION MODEL WRSP10.XX LOW NOX BURNERS AND SERVED BY A COOLING TOWER (PERMIT-EXEMPT), A DRY SOX SCRUBBER, A DRY ELECTROSTATIC PRECIPITATOR (ESP), AND A SELECTIVE CATALYTIC REDUCTION (SCR) SYSTEM

VI. Emission Control Technology Evaluation

Operation of the furnace results in emissions of NO_x, SO_x, PM₁₀, CO and VOC from the combustion of fuels and melting of the glass ingredients. Following the proposed modifications, the natural gas-fired furnace will employ a Selective Catalytic Reduction (SCR) System with ammonia injection to reduce NO_x emissions, as well as a dry electrostatic precipitator (ESP) for PM control and a high temperature dry scrubber for SO_x control.

Selective Catalytic Reduction System:

Selective Catalytic Reduction systems reduce NO_x emissions by reacting the NO_x with ammonia in the presence of a catalyst to form molecular nitrogen (N₂) and H₂O. SCR systems typically reduce NO_x emissions by more than 90%, provided the catalyst is kept within the ideal operating temperature range. The ideal operating temperature for a conventional SCR catalyst is 600 to 850 °F.

Electrostatic Precipitator:

Electrostatic precipitators remove particulate matter (PM) emissions from the flue gas by electrically charging the particulate matter and collecting it on electrically-grounded surfaces.

Dry Scrubber:

Dry scrubbing involves injecting a dry reagent into the gas stream as the gas enters a reaction chamber. The chamber serves as a location for the SO_x and reagent (alkali) to mix and react to form a dry particulate (salt). The reacted dry particulate flows downstream to a particulate control device for collection. The chamber is sized to achieve a desired retention time for the reaction to take place. The chamber's inlet and outlet temperatures are relatively the same, less minor radiant heat losses. Several different dry reagents (alkalis) can be injected; most of these are sodium or calcium based. Pilkington uses calcium hydroxide (or hydrated lime). The SO_x removal efficiency of a dry injection system will be a function of the inlet temperature of the gas steam, SO_x inlet concentration, reaction chamber retention time proper mixing of the reagent in the gas stream, moisture content of the gas stream, reagent selection and reagent stoichiometry. Typically, dry scrubbers remove 50% of the SO_x emissions when used on float glass furnaces.

VII. General Calculations

A. Assumptions

- The glass furnace operates 24 hours/day, 365 days/year.
- There are no proposed changes to the furnace size or glass pull-rate.
- All particulate matter emitted at the electrostatic precipitator exhaust is PM₁₀.
- All other assumptions will be stated as they are made.

B. Emission Factors

1. Pre-Project Emission Factors

The following table lists the pre-project emission factors for the glass furnace:

Pollutant	Emission Factors (EF1) and/or Emission Rates	Source
NO _x	241.5 lb/hr (block 24-hr average) 4,410.0 lb/day (rolling 30-day average) 1,533,000 lb/calendar year	PTO N-477-10-8
SO _x	88.0 lb/hr	PTO N-477-10-8
PM ₁₀	30.0 lb/hr	PTO N-477-10-8
CO	567.0 lb/day	PTO N-477-10-8
VOC	21.0 lb/day	PTO N-477-10-8

2. Post-Project Emission Factors

The following table lists the post-project emission factors for the glass furnace:

Pollutant	Emission Factors (EF1) and/or Emission Rates	Source
NO _x	3.4 lb/ton of glass pulled (block 24-hr average) 2.9 lb/ton of glass pulled (rolling 30-day average)	Proposed by Applicant
SO _x	1.7 lb/ton of glass pulled (block 24-hr average) 1.2 lb/ton of glass pulled (rolling 30-day average)	Proposed by Applicant
PM ₁₀	0.70 lb/ton of glass pulled (block 24-hr average)	Proposed by Applicant
CO	0.9 lb/ton of glass pulled (3-hr average)	Proposed by Applicant
VOC	0.10 lb/ton of glass pulled (3-hr average)	Proposed by Applicant
NH ₃	10 ppmvd @ 12% O ₂	Proposed by Applicant

C. Calculations

1. Pre-Project Potential to Emit (PE1)

The following summary of the pre-project emissions for the glass furnace was obtained from the application review for District Project N-1082218.

Pollutant	Daily Emissions (lb/day)	Annual Emissions (lb/year)
NO _x	4,410.0	1,533,000
SO _x	2,112.0	770,880
PM ₁₀	720.0	262,800
CO	567.0	206,955
VOC	21.0	7,665
NH ₃	0.0	0

2. Post Project Potential to Emit (PE2)

NO_x Emissions

Daily post-project emissions are based on the quantity of glass pulled (630 tons/day) and the block 24-hr average post-project emission factor for NO_x (3.4 lb-NO_x/ton)

$$PE2 \text{ NO}_x = 630 \text{ tons/day} \times 3.4 \text{ lb-NO}_x/\text{ton} = 2,142.0 \text{ lb-NO}_x/\text{day}$$

Annual post-project NO_x emissions are based on the quantity of glass pulled (219,000 tons/year) and the rolling 30-day average post-project emission factor for NO_x (2.9 lb-NO_x/ton).

$$PE2 \text{ NO}_x = 219,000 \text{ tons/year} \times 2.9 \text{ lb-NO}_x/\text{ton} = 635,100 \text{ lb-NO}_x/\text{year}$$

SOx Emissions

Daily post-project emissions are based on the quantity of glass pulled (630 tons/day) and the block 24-hr average post-project emission factor for SOx (1.7 lb-SOx/ton)

$$\text{PE2 SOx} = 630 \text{ tons/day} \times 1.7 \text{ lb-SOx/ton} = 1,071.0 \text{ lb-SOx/day}$$

Annual post-project SOx emissions are based on the quantity of glass pulled (219,000 tons/year) and the rolling 30-day post-project emission factor for SOx (1.2 lb-SOx/ton).

$$\text{PE2 SOx} = 219,000 \text{ tons/year} \times 1.2 \text{ lb-SOx/ton} = 262,800 \text{ lb-SOx/year}$$

PM₁₀ Emissions

Daily post-project emissions are based on the quantity of glass pulled (630 tons/day) and the block 24-hr average post-project emission factor for PM₁₀ (0.7 lb-PM₁₀/ton)

$$\text{PE2 PM}_{10} = 630 \text{ tons/day} \times 0.7 \text{ lb-PM}_{10}/\text{ton} = 441.0 \text{ lb-PM}_{10}/\text{day}$$

Annual post-project PM₁₀ emissions are based on the quantity of glass pulled (219,000 tons/year) and the block 24-hr post-project emission factor for PM₁₀ (0.7 lb-PM₁₀/ton).

$$\text{PE PM}_{10} = 219,000 \text{ tons/year} \times 0.7 \text{ lb-PM}_{10}/\text{ton} = 153,300 \text{ lb-PM}_{10}/\text{year}$$

CO Emissions

Daily post-project emissions are based on the quantity of glass pulled (630 tons/day) and the 3-hr average post-project emission factor for CO (0.9 lb-CO/ton)

$$\text{PE2 CO} = 630 \text{ tons/day} \times 0.9 \text{ lb-CO/ton} = 567.0 \text{ lb-CO/day}$$

Annual post-project CO emissions are based on the quantity of glass pulled (219,000 tons/year) and the 3-hr post-project emission factor for CO (0.9 lb-CO/ton).

$$\text{PE2 CO} = 219,000 \text{ tons/year} \times 0.9 \text{ lb-CO/ton} = 197,100 \text{ lb-CO/year}$$

VOC Emissions

Daily post-project emissions are based on the quantity of glass pulled (630 tons/day) and the 3-hr average post-project emission factor for VOC (0.10 lb-CO/ton)

$$\text{PE2 VOC} = 630 \text{ tons/day} \times 0.10 \text{ lb-VOC/ton} = 63.0 \text{ lb-VOC/day}$$

Alternatively, the facility has requested to retain their existing VOC limit of 21.0 lb-VOC/day. Therefore, this limit will be used on the permit. Annual emissions will be based on the requested daily limit and a 365 day operating period.

$$\text{PE VOC} = 21.0 \text{ lb-VOC/day} \times 365 \text{ days/year} = 7,665 \text{ lb-VOC/year}$$

NH₃ Emissions

Ammonia Emissions are based on the daily fuel usage of 5,942,875 ft³ of natural gas and the ammonia slip concentration of 10 ppmvd @ 12% O₂.

$$EF_{NH_3} = \frac{(10 \text{ ppmvd}) \left(8,578 \frac{\text{dscf}}{\text{MMBtu}} \right) \left(17 \frac{\text{lb-NH}_3}{\text{lb-mol}} \right)}{\left(379.5 \frac{\text{dscf}}{\text{lb-mol}} \right) \left(10^6 \right) \left(\frac{20.95-12}{20.95} \right)} = 0.009 \frac{\text{lb-NH}_3}{\text{MMBtu}}$$

PE₂ NH₃ = 5,942,875 scf-NG x MMBtu/10³ scf x 0.009 lb-NH₃/MMBtu = 53.5 lb-NH₃/day

PE₂ NH₃ = 53.5 lb-NH₃/day x 365 days/year = 19,528 lb-NH₃/year

Post-Project Emissions Summary

Pollutant	Daily Emissions (lb/day)	Annual Emissions (lb/year)
NO _x	2,142.0	635,100
SO _x	1,071.0	262,800
PM ₁₀	441.0	153,300
CO	567.0	197,100
VOC	21.0	7,665
NH ₃	53.5	19,528

3. Pre-Project Stationary Source Potential to Emit (SSPE1)

Pursuant to Section 4.9 of District Rule 2201, the Pre-Project Stationary Source Potential to Emit (SSPE1) is the Potential to Emit (PE) from all units with valid ATCs or PTOs at the Stationary Source and the quantity of Emission Reduction Credits (ERCs) which have been banked since September 19, 1991 for Actual Emissions Reductions that have occurred at the source, and which have not been used on-site. Unless otherwise noted, the SSPE data in the following table was calculated from information listed on the existing permits (See Appendix IV for SSPE1 calculations).

Pre-Project Stationary Source Potential to Emit (lb/year)						
Permit Unit	NO_x	SO_x	PM₁₀	CO	VOC	NH₃
N-477-1-5	0	0	60,225	0	0	0
N-477-3-4 ¹	0	0	0	0	0	0
N-477-4-6 ²	0	0	767	0	0	0
N-477-5-4	0	0	37,153	0	0	0
N-477-6-5	0	0	3,011	0	0	0
N-477-7-6	0	0	14,509	0	0	0
N-477-10-8 ³	1,533,000	770,880	262,800	206,955	7,665	0
N-477-19-3	239	0	17	51	19	0
N-477-20-3	1029	0	73	222	82	0
N-477-28-3 ¹	0	0	0	0	0	0
N-477-29-4 ¹	0	0	0	0	0	0
N-477-30-4 ¹	0	0	0	0	0	0
N-477-31-3 ¹	0	0	0	0	0	0
N-477-32-3 ¹	0	0	0	0	0	0
N-477-33-3 ¹	0	0	0	0	0	0
N-477-34-5	0	0	171	0	0	0
N-477-35-4 ¹	0	0	0	0	0	0
N-477-39-3	22,338	36,500	2,190	5,585	438	0
N-477-43-4	44	17	1	58	44	0
N-477-44-3	23,652	511	803	3,942	621	0
N-477-49-2	174	0	5	26	5	0
N-477-50-1	343	0	3	564	5	0
N-477-51-1	1,008	0	3	60	11	0
ATC N-477-54-0 ⁴	3,732	222	7,482	5,521	2,025	0
ATC N-477-55-0 ⁴	0	0	37	0	0	0
ATC N-477-56-0 ³	0	0	37	0	0	0
ATC N-477-58-0 ⁵	693	1	3	31	4	0
ATC N-477-59-0 ⁵	693	1	3	31	4	0
ERC N-410-2	594	0	0	0	0	0
ERC N-410-3	0	0	0	2,624	0	0
SSPE1 (W/O ERC)	1,586,945	808,132	389,293	223,046	10,923	0
SSPE1 (W/ERC)	1,587,539	808,132	389,293	225,670	10,923	0

4. Post Project Stationary Source Potential to Emit (SSPE2)

Pursuant to Section 4.10 of District Rule 2201, the Post Project Stationary Source Potential to Emit (SSPE2) is the Potential to Emit (PE) from all units with valid Authorities to Construct (ATC) or Permits to Operate (PTO) at the Stationary Source and the quantity of emission reduction credits (ERC) which have been banked since September 19, 1991 for Actual Emissions Reductions that have occurred at the source, and which have not been used on-site.

¹ Data for these permit units was obtained from District Project N-960137.
² Data for this permit unit was obtained from District Project N-1000558.
³ Data for these permit units was obtained from District Project N-1082218.
⁴ Data for these permit units was obtained from District Project N-1082005.
⁵ Data for these permit units was obtained from District Project N-1113227.

Post-Project Stationary Source Potential to Emit (lb/year)						
Permit Unit	NO_x	SO_x	PM₁₀	CO	VOC	NH₃
N-477-1-5	0	0	60,225	0	0	0
N-477-3-4	0	0	0	0	0	0
N-477-4-6	0	0	767	0	0	0
N-477-5-4	0	0	37,153	0	0	0
N-477-6-5	0	0	3,011	0	0	0
N-477-7-6	0	0	14,509	0	0	0
N-477-10-12	635,100	262,800	153,300	197,100	7,665	19,528
N-477-19-3	239	0	17	51	19	0
N-477-20-3	1029	0	73	222	82	0
N-477-28-3	0	0	0	0	0	0
N-477-29-4	0	0	0	0	0	0
N-477-30-4	0	0	0	0	0	0
N-477-31-3	0	0	0	0	0	0
N-477-32-3	0	0	0	0	0	0
N-477-33-3	0	0	0	0	0	0
N-477-34-5	0	0	171	0	0	0
N-477-35-4	0	0	0	0	0	0
N-477-39-3	22,338	36,500	2,190	5,585	438	0
N-477-43-4	44	17	1	58	44	0
N-477-44-3	23,652	511	803	3,942	621	0
N-477-49-2	174	0	5	26	5	0
N-477-50-1	343	0	3	564	5	0
N-477-51-1	1,008	0	3	60	11	0
ATC N-477-54-0	3,732	222	7,482	5,521	2,025	0
ATC N-477-55-0	0	0	37	0	0	0
ATC N-477-56-0	0	0	37	0	0	0
ATC N-477-58-0	693	1	3	31	4	0
ATC N-477-59-0	693	1	3	31	4	0
ERC N-410-2	594	0	0	0	0	0
ERC N-410-3	0	0	0	2,624	0	0
SSPE2 W/O ERC	689,045	300,052	279,793	213,191	10,923	19,528
SSPE2 W/ERC	689,639	300,052	279,793	215,815	10,923	19,528

5. Major Source Determination

Pursuant to Section 3.24 of District Rule 2201, a Major Source is a stationary source with post-project emissions or a Post Project Stationary Source Potential to Emit (SSPE2), equal to or exceeding one or more of the following threshold values. However, Section 3.24.2 states, “for the purposes of determining major source status, the SSPE2 shall not include the quantity of emission reduction credits (ERC) which have been banked since September 19, 1991 for Actual Emissions Reductions that have occurred at the source, and which have not been used on-site.”

Major Source Thresholds			
Pollutant	SSPE2 W/O ERC lb/year	Major Source Thresholds lb/year	Major Source?
NOx	689,045	20,000	Yes
SOx	300,052	140,000	Yes
PM ₁₀	279,793	140,000	Yes
CO	213,191	200,000	Yes
VOC	10,923	20,000	No

As shown above, this facility is a Major Source for NOx, SOx, PM₁₀, and CO emissions.

6. Baseline Emissions (BE)

Baseline emission calculations (in lb/year) are performed, on a pollutant-by-pollutant for each emission unit, to determine the quantity of offsets required. Pursuant to District Rule 4.6.8, for existing facilities, the installation or modification of an emission control technique performed solely for the purpose of compliance with the requirements of District, State or Federal air pollution control laws, regulations, or orders is exempt from offset requirements if certain criteria is met. As is demonstrated later in this evaluation, this proposal meets the criteria for the offset exemption and baseline emission calculations are not necessary.

7. SB288 Modification

An SB 288 Major Modification is defined in 40 CFR Part 51.165 (in effect 12/19/02) as *"any physical change in or change in the method of operation of a major stationary source that would result in a significant net emissions increase of any pollutant subject to regulation under the Act."*

This facility is a Major Source for NOx, SOx, PM₁₀, and CO emissions. The District is in attainment for CO; therefore, an SB288 modification cannot be triggered for CO.

SB288 calculations are required for NOx, SOx, and PM₁₀, to determine whether this project will trigger an SB288 Modification. A project triggers an SB288 Modification if the net emissions increase (NEI) exceeds the thresholds in District Rule 2201. The respective thresholds are 50,000 lb-NOx/year, 80,000 lb-SOx/year, and 30,000 lb-PM₁₀/year.

For existing units, NEI is equal to PE2 – BAE, where:

BAE = Baseline average emissions over a representative 2-years of operation.

NOx:

The following emissions data was obtained from the District's 2010 and 2011 emission inventory, and is based on actual CEMs data collected over that period.

Glass Furnace	2010 NOx (lb/year)	2011 NOx (lb/year)	BAE NOx (lb/year)
N-477-10	1,363,580	1,128,880	1,246,230

$$PE2 = 635,100 \text{ lb-NOx/year}$$

$$NEI = PE2 - BAE = 635,100 \text{ lb-NOx/year} - 1,246,230 \text{ lb-NOx/year}$$
$$NEI < 0 < 50,000 \text{ lb-NOx/year SB288 Threshold}$$

Thus, an SB288 Modification is not triggered for NOx emissions.

SOx:

Emissions for SOx will be determined using the 2010 and 2011 emission inventory; however, the SOx emission factors used to establish the SOx emission inventory values was determined to be incorrect. Therefore, SOx emissions have been determined using the glass pull rate provided in the inventory, and using the facility's 2010 and 2011 SOx source test results.

Glass Furnace	2010 SOx (lb/year)	2011 SOx (lb/year)	BAE SOx (lb/year)
N-477-10	356,351	319,706	338,029

$$PE2 = 262,800 \text{ lb-SOx/year}$$

$$NEI = PE2 - BAE = 262,800 \text{ lb-SOx/year} - 338,029 \text{ lb-SOx/year}$$
$$NEI < 0 < 80,000 \text{ lb-SOx/year SB288 Threshold}$$

Thus, an SB288 Modification is not triggered for SOx emissions.

PM₁₀:

The following emissions data was taken from the emission inventory for years 2010 and 2011.

Glass Furnace	2010 PM₁₀ (lb/year)	2011 PM₁₀ (lb/year)	BAE PM₁₀ (lb/year)
N-447-10	170,200	105,140	137,670

$$PE2 = 153,300 \text{ lb-PM}_{10}/\text{year}$$

$$NEI = PE2 - BAE = 153,300 \text{ lb-PM}_{10}/\text{year} - 137,670 \text{ lb-PM}_{10}/\text{year}$$
$$NEI = 15,630 \text{ lb-PM}_{10} < 30,000 \text{ lb-PM}_{10}/\text{year SB288 Threshold}$$

Thus, an SB288 Modification is not triggered for PM₁₀ emissions.

In summary, this project does not trigger an SB288 Modification.

8. Federal Major Modification

District Rule 2201, Section 3.17 states that Federal Major Modifications are the same as “Major Modification” as defined in 40 CFR 51.165 and part D of Title I of the CAA. Pursuant to the District’s draft Major Modification policy, Case 3:

“Modifications to existing emission units solely for District, State, or Federal Rule compliance, where there are no changes in capacity of the unit, the default assumption is that the modification will not allow the emission unit to operate at a higher utilization rate. For such projects the emission increase is presumed to be 0 for all pollutants.”

This proposed project is for compliance with District Rule 4354 and will not result in a higher utilization rate of the glass furnace. Pursuant to the District’s draft Major Modification Policy, the net emission increase is presumed to be 0 for all pollutants for cases where there is no increase in utilization along with no increases in criteria pollutant emissions. Thus, the project does not trigger a Federal Major Modification.

9. Quarterly Net Emissions Change (QNEC)

The QNEC is calculated solely to establish emissions that are used to complete the District’s PAS emissions profile screen. Detailed QNEC calculations are included in Appendix VII.

VIII. Compliance

Rule 1080 Stack Monitoring

This Rule grants the APCO the authority to request the installation and use of continuous emissions monitors (CEMs), and specifies performance standards for the equipment and administrative requirements for recordkeeping, reporting, and notification.

The furnace is equipped with an operational CEMs for NO_x, O₂, stack gas flow rate, and opacity. Compliance with the requirements of this Rule is anticipated.

The following conditions will be included on the Authority to Construct permit:

- *The exhaust stack shall be equipped with a continuous emissions monitoring system (CEMS) for NO_x, O₂ and stack gas flow rate, and a continuous opacity monitoring system (COMS). Both the CEMS and COMS shall meet the requirements of 40 CFR parts 60 and 75 and shall be capable of monitoring emissions during startups and shutdowns as well as during normal operating conditions. [District Rule 1080 and 40 CFR 52.21]*
- *The facility shall install and maintain equipment, facilities, and systems compatible with the District’s CEM data polling software system and shall make CEM data available to the District’s automated polling system on a daily basis. [District Rule 1080]*

- *Upon notice by the District that the facility's CEM system is not providing polling data, the facility may continue to operate without providing automated data for a maximum of 30 days per calendar year provided the CEM data is sent to the District by a District-approved alternative method. [District Rule 1080]*
- *{2251} The owner or operator shall, upon written notice from the APCO, provide a summary of the data obtained from the CEM systems. This summary of data shall be in the form and the manner prescribed by the APCO. [District Rule 1080]*
- *Results of the CEM system shall be averaged over the appropriate averaging period, using consecutive 15-minute sampling periods in accordance with all applicable requirements of CFR 60.13, or by other methods deemed equivalent by mutual agreement with the District, California Air Resources Board, and EPA. [District Rule 1080 and 40 CFR 60.13]*
- *Records shall be maintained and shall include: the occurrence and duration of any start-up, shutdown or malfunction, performance testing, evaluations, calibrations, checks, adjustments, any periods during which a continuous monitoring system or monitoring device is inoperative, maintenance of any CEMS that have been installed pursuant to District Rule 1080, and emission measurements. [District Rule 1080]*
- *Cylinder gas audits (CGAs) of continuous emission monitors shall be conducted quarterly, except during quarters in which relative accuracy and total accuracy testing is performed, in accordance with EPA guidelines. The District shall be notified prior to completion of the audits. Audit reports shall be submitted along with quarterly compliance reports to the District. [District Rule 1080]*
- *The owner/operator shall perform a relative accuracy test audit (RATA) as specified by 40 CFR Part 60, Appendix F (CGAs and RATAs) and if applicable 40 CFR Part 75, Appendix B (linearity and RATAs) at least once every four calendar quarters and annually within 30 days of the anniversary date of the initial test. The permittee shall comply with the applicable requirements for quality assurance testing and maintenance of the continuous emission monitor equipment in accordance with the procedures and guidance specified in 40 CFR Part 60, Appendix F. [District Rule 1080]*
- *The operator shall report any violation of NOx emission standards indicated by the NOx CEMS or any violation of opacity standards as indicated by the COMS to the APCO within 96 hours. [District Rule 1080]*
- *The operator shall notify the APCO no later than eight hours after the detection of a breakdown of the CEMS or COMS. The operator shall inform the APCO of the intent to shut down the CEMS or COMS at least 24 hours prior to the event. [District Rule 1080]*

- *The permittee shall submit a written report including copies of any Equipment Breakdown reports and/or pertinent variance decisions to the APCO for each calendar quarter, within 30 days of the end of the quarter, including: time intervals, data and magnitude of excess emissions, nature and cause of excess emissions (if known), corrective actions taken and preventive measures adopted; averaging period used for data reporting shall correspond to the averaging period for each respective emission standard; applicable time and date of each period during which the CEM was inoperative (except for zero and span checks) and the nature of system repairs and adjustments; and a negative declaration when no excess emissions occurred. [District Rule 1080 and 40 CFR 52.21]*

Rule 1081 Source Sampling

This rule requires adequate and safe facilities for use in sampling to determine compliance with emission limits, and specifies methods and procedures for source testing and sample collection. Compliance with this Rule is expected.

The following conditions will be included on the Authority to Construct permit:

- *All required source testing shall conform to the compliance testing procedures described in District Rule 1081. [District Rule 1081]*
- *The exhaust stack shall be equipped with permanent provisions to allow collection of stack gas samples consistent with EPA test methods and shall be equipped with safe permanent provisions to sample stack gases with a portable NO_x, CO, and O₂ analyzer during District inspections. The sampling ports shall be located in accordance with the CARB regulation titled California Air Resources Board Air Monitoring Quality Assurance Volume VI, Standard Operating Procedures for Stationary Source Emission Monitoring and Testing. [District Rule 1081]*
- *Compliance demonstration (source testing) shall be District witnessed or authorized and samples shall be collected by a certified testing laboratory. Source testing shall be conducted using the test methods and procedures specified in this permit. The District must be notified 45 days prior to any compliance source test, and a source test plan must be submitted for approval 30 days prior to testing. The results of each source test shall be submitted to the District within 60 days thereafter. [District Rule 1081]*
- *Source testing to measure emissions when firing on LPG fuel need not be performed if the LPG fuel usage for this furnace does not exceed 100 hours during any one calendar year. Once 100 hours of operation using LPG fuel is exceeded, a source test shall be performed within 90 days after the exceeding 100 hours of operation. [District Rule 1081]*

Rule 2020 Exemptions

The applicant has proposed to install a water cooling tower that is rated at less than 10,000 gallons per minute and is not used for cooling of process water, water from barometric jets, or water from barometric condensers. The cooling tower is categorically exempt from permits per District Rule 2020 Section 6.2.

Rule 2201 New and Modified Stationary Source Review Rule

A. Best Available Control Technology (BACT)

Per District Rule 2201 Section 4.2.3, for existing facilities, the installation or modification of an emission control technique performed solely for the purpose of compliance with the requirements of District, State, or Federal air pollution control laws, regulations, or orders, as approved by the APCO, are exempt from BACT requirements provided all of the following criteria are met:

1. There must be no increase in the physical or operation design of the existing facility, except for the changes to the design needed for the installation and modification of the emission control technique itself;

The applicant's proposal does not change the physical or operation design of the existing facility, with the exception of the changes necessary to install the new emission control devices.

2. There shall be no increase in the permitted rating or permitted operating schedule of the permitted unit;

This proposal does not increase any permitted rating or permitted operating schedules.

3. There shall be no increase in emissions from the stationary source that will cause or contribute to any violation of a National Ambient Air Quality Standard, Prevention of Significant Deterioration increment, or Air Quality Related Value in Class I areas;

This project will not result in an increase in emissions of any pollutants that are subject to a National Ambient Air Quality Standard. Therefore, it cannot cause or contribute to a violation of any of the items listed above.

4. The project shall not result in an increase in permitted emissions or potential to emit of more than 25 tons per year of NO_x, or 25 tons per year of VOC, or 15 tons per year of SO_x, or 15 tons per year of PM₁₀, or 50 tons/year of CO.

This project does not result in an increase in permitted emissions of any of the listed pollutants.

5. The project shall not constitute a Federal Major Modification.

As demonstrated earlier in this evaluation, this project does not trigger a Federal Major Modification.

As demonstrated above, this project qualifies for the BACT exemption that is outlined in District Rule 2201 Section 4.2.3; therefore, BACT requirements are not applicable.

B. Offsets

Per District Rule 2201 Section 4.6.8, for existing facilities, the installation or modification of an emission control technique performed solely for the purpose of compliance with the requirements of District, State, or Federal air pollution control laws, regulations, or orders, as approved by the APCO, are exempt from offset requirements provided all of the following criteria are met:

1. There must be no increase in the physical or operation design of the existing facility, except for the changes to the design needed for the installation and modification of the emission control technique itself;

The applicant's proposal does not change the physical or operation design of the existing facility, with the exception of the changes necessary to install the new emission control devices.

2. There shall be no increase in the permitted rating or permitted operating schedule of the permitted unit;

This proposal does not increase any permitted rating or permitted operating schedules.

3. There shall be no increase in emissions from the stationary source that will cause or contribute to any violation of a National Ambient Air Quality Standard, Prevention of Significant Deterioration increment, or Air Quality Related Value in Class I areas;

This project will not result in an increase in emissions of any pollutants that are subject to a National Ambient Air Quality Standard. Therefore, it cannot cause or contribute to a violation of any of the items listed above.

4. The project shall not result in an increase in permitted emissions or potential to emit of more than 25 tons per year of NO_x, or 25 tons per year of VOC, or 15 tons per year of SO_x, or 15 tons per year of PM₁₀, or 50 tons/year of CO.

This project does not result in an increase in permitted emissions of any of the listed pollutants.

As demonstrated above, this project qualifies for the offset exemption that is outlined in District Rule 2201 Section 4.6.8; therefore, offsets are not required.

C. Public Notification

1. Applicability

Public noticing is required for:

- a. Any new Major Source, which is a new facility that is also a Major Source,
- b. Major Modifications,
- c. Any new emissions unit with a Potential to Emit greater than 100 pounds during any one day for any one pollutant,
- d. Any project which results in the offset thresholds being surpassed, and/or
- e. Any project with an SSPE of greater than 20,000 lb/year for any pollutant.

a. New Major Source

New Major Sources are new facilities, which are also Major Sources. Since this is not a new facility, public noticing is not required for this project for New Major Source purposes.

b. Major Modification

As demonstrated in VII.C.7, this project is not a Major Modification (SB288 or Federal).

c. PE > 100 lb/day

Applications which include a new emissions unit with a PE greater than 100 pounds during any one day for any pollutant will trigger public noticing requirements. There are no new emissions units proposed in this project. Therefore, public noticing is not required for this purpose.

d. Offset Threshold

The following table compares the SSPE1 with the SSPE2 in order to determine if any offset thresholds have been surpassed with this project.

Offset Threshold				
Pollutant	SSPE1 (lb/year)	SSPE2 (lb/year)	Offset Threshold	Offset Threshold Surpassed?
NO _x	1,587,539	689,639	20,000 lb/year	No
SO _x	808,132	300,052	54,750 lb/year	No
PM ₁₀	389,293	279,793	29,200 lb/year	No
CO	225,670	215,815	200,000 lb/year	No
VOC	10,923	10,923	20,000 lb/year	No

Facility emissions are either decreasing or remaining the same. Thus, an offset threshold will not be surpassed.

e. SSIPE > 20,000 lb/year

Public notification is required for any permitting action that results in a Stationary Source Increase in Permitted Emissions (SSIPE) of more than 20,000 lb/year of any affected pollutant. According to District policy, the SSIPE is calculated as the Post Project Stationary Source Potential to Emit (SSPE2) minus the Pre-Project Stationary Source Potential to Emit (SSPE1), i.e. $SSIPE = SSPE2 - SSPE1$. The values for SSPE2 and SSPE1 are calculated according to Rule 2201, Sections 4.9 and 4.10, respectively. The SSIPE is compared to the SSIPE Public Notice thresholds in the following table:

Stationary Source Increase in Permitted Emissions [SSIPE] – Public Notice					
Pollutant	SSPE2 (lb/year)	SSPE1 (lb/year)	SSIPE (lb/year)	SSIPE Public Notice Threshold	Public Notice Required?
NO _x	689,639	1,587,539	< 0	20,000 lb/year	No
SO _x	300,052	808,132	< 0	20,000 lb/year	No
PM ₁₀	279,793	389,293	< 0	20,000 lb/year	No
CO	215,815	225,670	< 0	20,000 lb/year	No
VOC	10,923	10,923	0	20,000 lb/year	No
NH ₃	19,528	0	19,528	20,000 lb/year	No

As demonstrated in the table above, a public notice is not required for SSIPE greater than 20,000 lb/year.

2. Public Notice Action

As discussed above, public noticing is not required for this project.

D. Daily Emission Limits (DELs)

Daily Emissions Limitations (DELs) and other enforceable conditions are required by Section 3.16 to restrict a unit’s maximum daily emissions, to a level at or below the emissions associated with the maximum design capacity. Per Sections 3.16.1 and 3.16.2, the DEL must be contained in the latest ATC and contained in or enforced by the latest PTO and enforceable, in a practicable manner, on a daily basis. DELs are also required to enforce the applicability of BACT.

The following conditions will be included on the Authority to Construct permit for this furnace.

- *The furnace fill rate shall not exceed 750 tons in any one day. [District Rule 2201]*
- *The glass pull rate shall not exceed 630 tons in any one day. [District Rules 2201 and 4354]*
- *The glass pull rate shall not exceed 219,000 tons in any rolling 12-month period. [District Rules 2201 and 4354]*

- *When firing on LPG, the fuel usage shall not exceed 64,066 gallons in any one day. [District Rule 2201]*
- *When firing on natural gas, the fuel usage shall not exceed 5,942,875 cubic feet in any one day. [District Rule 2201]*
- *NOx emissions from the glass furnace, except during periods of start-up, shutdown, and idling, shall not exceed any of the following limits: 89.25 lb-NOx/hr⁶ or 3.4 lb-NOx/ton of glass pulled, based on a block 24-hour average. The emission limits in this condition also enforce emission reductions granted by certificate number 87-6. [District Rules 2201, 2301, and 4354]*
- *NOx emissions from the glass furnace, except during periods of start-up, shutdown, and idling, shall not exceed any of the following limits: 76.13 lb-NOx/hr⁷ or 2.9 lb-NOx/ton of glass pulled, based on a 30-day rolling average. The emission limits in this condition also enforce emission reductions granted by certificate number 87-6. [District Rules 2201, 2301, and 4354]*
- *SOx emissions from the glass furnace, except during periods of start-up, shutdown, and idling, shall not exceed any of the following emission limits: 44.63⁸ lb-SOx/hr or 1.7 lb-SOx/ton of glass pulled, based on a block 24-hour average. [District Rules 2201 and 4354, and 40 CFR 52.21]*
- *SOx emissions from the glass furnace, except during periods of start-up, shutdown, and idling, shall not exceed any of the following limits: 31.50 lb-SOx/hr⁹ or 1.2 lb-SOx/ton of glass pulled, based on a 30-day rolling average. [District Rules 2201 and 4354, and 40 CFR 52.21]*

⁶ The hourly NOx emission rate, based on a 24-hour block average, for this furnace is calculated using the daily emissions rate of 2,142.0 lb-NOx/day and assuming 24 hours/day operation of the furnace.

$$\text{Hourly NOx} = 2,142.0 \text{ lb-NOx/day} \div 24 \text{ hr/day} = 89.25 \text{ lb-NOx/hr (block 24-hour average)}$$

⁷ This unit is limited to 630 tons of glass pulled per day. At 2.9 lb-NOx/ton, the daily NOx emission rate would be 1,827.0 lb-NOx/day (based on a 30-day rolling average). Thus,

$$\text{Hourly NOx} = 1,827.0 \text{ lb-NOx/day} \div 24 \text{ hr/day} = 76.13 \text{ lb-NOx/hr (30-day rolling average)}$$

⁸ This hourly SOx emission rate, based on a 24-hour block average, for this furnace is calculated using the daily emission rate of 1,071 lb-SOx/day and assuming 24 hours/day operation of the furnace.

$$\text{Hourly SOx} = 1,071 \text{ lb-SOx/day} \div 24 \text{ hr/day} = 44.63 \text{ lb-SOx/hr (block 24-hour average)}$$

⁹ This unit is limited to 630 tons of glass pulled per day. At 1.2 lb-SOx/ton, the daily SOx emission rate would be 756.0 lb-SOx/day (based on a 30-day rolling average). Thus,

$$\text{Hourly SOx} = 756.0 \text{ lb-SOx/day} \div 24 \text{ hr/day} = 31.50 \text{ lb-SOx/hr (30-day rolling average)}$$

- *PM10 emissions (filterable and condensable) from the glass furnace, except during periods of start-up, shutdown, and idling, shall not exceed either of the following limits: 18.38 lb/hr¹⁰ or 0.70 lb-PM10/ton of glass pulled, based on a block 24-hour average. [District Rules 2201 and 4354, and 40 CFR 52.21]*
- *CO emissions from the glass furnace, except during periods of start-up, shutdown, and idling, shall not exceed 0.9 lb-CO/ton of glass pulled, based on a 3-hour rolling average. [District Rules 2201 and 4354]*
- *VOC emissions from the glass furnace, except during periods of start-up, shutdown, and idling, shall not exceed 0.10 lb-VOC/ton of glass pulled, based on a 3-hour rolling average. [District Rules 2201 and 4354]*
- *VOC emissions from the glass furnace shall not exceed 21.0 lb in any one day. [District Rule 2201]*
- *Ammonia (NH₃) emissions, as measured in the SCR exhaust, shall not exceed 10 ppmvd @ 12% O₂. [District Rule 2201]*
- *A block 24-hour average is defined as the arithmetic average of hourly emission rates of a furnace as measured over 24 one-hour periods, daily, from 12:00 AM to 11:59 PM, excluding periods of system calibration. [District Rule 4354]*
- *A rolling average is defined as the arithmetic average of the emission rates of a furnace over a contiguous period, excluding periods of system calibration. For rolling 30-day averages, the averaged emissions are daily emissions and the contiguous period is 30 days. For rolling 24-hour averages, the averaged emissions are hourly emissions and the contiguous period is 24 hours. For rolling three hour averages, the averaged emissions are hourly emissions and the contiguous period is three hours. [District Rule 4354]*
- *Start-up is defined as the period of time, after initial construction or a furnace rebuild, during which a glass melting furnace is heated to operating temperature by the primary furnace combustion system and instrumentation are brought to stabilization. Shutdown is defined as the period of time during which a glass melting furnace is taken from an operational to a non-operational status by allowing it to cool down from its operating temperature to a cold or ambient temperature as the fuel supply is turned off. Idling is defined as the operation of the furnace at less than 25 percent of the permitted production capacity or fuel use capacity as stated on the Permit to Operate. [District Rule 4354]*
- *Saltcake or gypsum may be used as a batch constituent as a source of sulfate. [District NSR Rule]*

¹⁰ This unit is limited to 630 tons of glass pulled per day. At 0.7 lb-PM10/ton, the daily PM10 emission rate would be 441.0 lb-PM10/day (based on a block 24 hour average). Thus

Hourly PM10 = 441.0 lb-PM10/day ÷ 24 hr/day = 18.38 lb-PM10/hr.

- *When using gypsum, the emissions of oxides of sulfur (referenced as SO₂) shall not exceed 30 pounds per hour when the gypsum usage is less than or equal to 10.7 pounds per 1,000 pounds of sand in the batch. [District NSR Rule and 40 CFR 52.21]*
- *If gypsum usage exceeds 10.7 lb/1000 lb of sand in the batch, the maximum allowable emissions shall be determined by following equation: $S_{MAX} = (6.3 * GYPRATE) - 39.5$; where S_{MAX} = allowable SO_x (referenced as SO₂) and GYPRATE = gypsum usage (lb/1000 lb sand). [District NSR Rule and 40 CFR 52.21]*
- *When using saltcake, the emissions of oxides of sulfur (referenced as SO₂) shall not exceed 30 pounds per hour when the saltcake usage is less than or equal to 8 pounds per 1000 pounds of sand in the batch. [District NSR Rule]*
- *If saltcake usage exceeds 8 lb/1000 lb of sand in the batch, the maximum allowable emissions shall be determined by the following equation: $S_{MAX} = (8.5 * SLTRATE) - 39.5$; where S_{MAX} =allowable SO_x (referenced as SO₂) and SLTRATE=saltcake usage (lb/1000 lb sand). [District NSR Rule]*

E. Compliance Assurance

1. Source Testing

Initial and annual source testing will be required for NO_x, SO_x, CO, PM₁₀, and VOC emissions for the glass furnace. The following conditions will be included on the Authority to Construct permit:

- *Source testing to measure the NO_x, SO_x, PM₁₀, CO, VOC, NH₃ in terms of each unit specified in this permit shall be conducted within 60 days after the end of the start-up exemption period and at least once every calendar year under all applicable permitted operating scenarios (low gypsum, high gypsum, low salt cake, high salt cake) and during periods of high furnace fill rate, but not more than every 18 months and not sooner than every 6 months to demonstrate compliance with emission limits of this permit. [District Rules 1081, 2201, 2520, and 4354]*
- *NH₃ emissions, for source test purposes, shall be determined using BAAQMD method ST-1B. [District Rule 2201]*

2. Monitoring

This glass furnace will be equipped with a CEMS for NO_x emissions, oxygen, stack gas flow rate, and opacity. Further information on the requirements for the CEMS is included in the District Rule 1080 and District Rule 4354 section of this document.

Additionally, District Rule 4354 requires monitoring of SO_x, PM₁₀, CO, and VOC emissions. The applicant has chosen to monitor these pollutants using parametric monitoring systems. The parametric monitoring system requirements are discussed further in the Rule 4354 section of this document.

Finally, the following monitoring requirement will be included on the Authority to Construct permit to ensure that the ammonia slip emission limit is not exceeded:

- *NH₃ monitoring shall be conducted at least once a month (in which source test is not performed) using Draeger tubes or a District approved equivalent method. The measured concentration shall be corrected to 12% O₂ to demonstrate compliance with the permitted emissions limit. [District Rule 2201]*

3. Recordkeeping

In addition to the recordkeeping requirements of District Rule 4354, the following recordkeeping requirements will be included on the Authority to Construct permit:

- *The permittee shall keep the following daily records: 1) The NO_x emission rate in lb/ton of glass pulled (block 24-hr average), 2) The NO_x emission rate in lb/ton of glass pulled (rolling 30-day average), and 3) The quantity of glass pulled from the furnace (tons/day). [District Rules 2201 and 4354]*
- *The permittee shall keep records of the rolling 12-month quantity of glass pulled. These records shall be updated on at least a monthly basis. [District Rule 2201]*
- *Daily records of natural gas or LPG usage shall be maintained. [District Rule 2520]*
- *The permittee shall keep a record of the cumulative annual hours of operation of the glass furnace on LPG fuel. [District Rule 2201]*
- *Daily records of the furnace fill rate shall be maintained. [District Rule 2520]*
- *Monthly records of salt cake and gypsum content per 1,000 lb of sand in each batch shall be maintained. [District Rule 2520]*

4. Reporting

Reporting requirements for these units are listed in the discussions for District Rules 1080 and 4354. Further reporting requirements for District Rule 2201 are not required.

Rule 2520 Federally Mandated Operating Permits

This facility is subject to this rule and has received their Title V Operating Permit. The proposed modification is a Minor Modification to the Title V Permit.

In accordance with Rule 2520, these modifications:

1. Do not violate requirements of any applicable federally enforceable local or federal requirement;
2. Do not relax monitoring, reporting, or recordkeeping requirements in the permit and are not significant changes in existing monitoring permit terms or conditions;

3. Do not require or change a case-by-case determination of an emission limitation or other standard, or a source-specific determination for temporary sources of ambient impacts, or a visibility or increment analysis;
4. Do not seek to establish or change a permit term or condition for which there is no corresponding underlying applicable requirement and that the source has assumed to avoid an applicable requirement to which the source would otherwise be subject. Such terms and conditions include:
 - a. A federally enforceable emission cap assumed to avoid classification as a modification under any provisions of Title I of the Federal Clean Air Act; and
 - b. An alternative emissions limit approved pursuant to regulations promulgated under section 112(i)(5) of the Federal Clean Air Act; and
5. Are not Title I modifications as defined in District Rule 2520 or modifications as defined in section 111 or 112 of the Federal Clean Air Act; and
6. Do not seek to consolidate overlapping applicable requirements.

As discussed earlier, the facility has applied for a Certificate of Conformity (COC). Therefore, the facility must apply to modify their Title V permit with an administrative amendment, prior to operating with the proposed modifications. Continued compliance with this rule is expected. The facility may operate under the ATC upon the submittal of a Title V administrative amendment application.

Rule 4001 New Source Performance Standards (NSPS)

40 CFR Part 60 Subpart CC, "Standards of Performance for Glass Manufacturing Plants" applies to each glass furnace that commences construction or modification after June 15, 1979.

This glass furnace was constructed prior to June 15, 1979. A modification is defined as any physical or operational change to an existing facility which results in an increase in the emission rate to the atmosphere of any pollutant to which a standard applies shall be considered a modification within the meaning of Section 111 of the Act. Additionally, the Code of Federal regulation states that the emission rate shall be expressed in terms of kg/hr. This proposal does not result in an increase in the kg/hr emission rate for any of the pollutants to which a standard applies. Additionally, it was determined in the most recent ATC project for the furnace, project N-1082218, that a modification to the furnace has not occurred since June 15, 1979.

Since the furnace was constructed prior to June 15, 1979 and a modification has not occurred since that time, the requirements of 40 CFR 60 Subpart CC are not applicable. The current permit for the glass furnace contains a permit shield from the requirements of Subpart CC and this permit shield will remain on the new ATC.

Rule 4002 National Emission Standards for Hazardous Air Pollutants

40 CFR Part 61 Subpart N, National Emission Standard for Inorganic Arsenic Emissions from Glass Manufacturing Plants

This subpart is applicable to glass melting furnaces that use commercial arsenic as a raw material. This furnace is currently prohibited from using arsenic as a raw material by a permit condition and this permit condition will remain on the glass furnace permit; therefore, Subpart N requirements are not applicable to this glass furnace.

40 CFR Part 63 Subpart SSSSSS, National Emission Standards for Hazardous Air Pollutants for Glass Manufacturing Area Sources

Subpart SSSSSS is applicable to glass manufacturing furnaces that meet all of the following criteria:

1. The source is a glass manufacturing facility is a plant site that manufactures flat glass, glass containers, or pressed and blown glass by melting a mixture of raw materials to produce molten glass and form the molten glass into sheets, containers, or other shapes;
2. The source is an area source of HAP emissions; and
3. The glass manufacturing facility uses one or more continuous furnaces to produce glass that contains compounds of one or more glass manufacturing metal HAP as raw materials in a glass manufacturing batch formulation.

“Glass manufacturing metal HAP” is defined in Subpart SSSSSS as an oxide or other compound of any of the following metals included in the list of urban HAP for the Integrated Urban Air Toxics Strategy and for which Glass Manufacturing was listed as an area source category: arsenic, cadmium, chromium, lead, manganese, and nickel.

Pursuant to Pilkington, the furnace does not currently utilize any glass manufacturing metal HAPs; however, future use of glass metal manufacturing metal HAPs may occur depending on future product requirements. §63.11450(d) states that following:

If you own or operate a furnace that produces glass at an annual rate of at least 45 Mg/yr (50 tpy) and is not charged with glass manufacturing metal HAP, and you begin production of a glass product that includes one or more glass manufacturing metal HAP as raw materials, and you produce at least 45 Mg/yr (50 tpy) of this glass product, you must comply with the applicable emission limit specified in §63.11451 within 2 years of the date on which you introduced production of the glass product that contains glass manufacturing metal HAP.

Based on the above requirement, the following condition will be included on the Authority to Construct permit:

- *If the operator begins producing a glass product in this furnace that includes one or more glass manufacturing metal HAPs as a raw material and the operator produces at least 50 tons per year of that glass product, then the operator shall comply with the glass furnace emission limits specified in 40 CFR 63.11451 within 2 years of the date of which production of the glass product that contains the glass manufacturing metal HAPs commenced. [40 CFR Part 63.11450(d)]*

Rule 4101 Visible Emissions

District Rule 4101, Section 5.0, indicates that no air contaminant shall be discharged into the atmosphere for a period or periods aggregating more than three minutes in any one hour, which is dark or darker than Ringelmann 1 or equivalent to 20% opacity.

The following condition will be listed on the Authority to Construct permit

- *No air contaminants shall be discharged into the atmosphere for a period or periods aggregating more than 3 minutes in any one hour which is as dark or darker than Ringelmann #1 or equivalent to 20% opacity and greater, unless specifically exempted by District Rule 4101, by using EPA method 9. If the equipment or operation is subject to a more stringent visible emission standard as prescribed in a permit condition, the more stringent visible emission limit shall supersede this condition. [District Rule 4101, and San Joaquin County Rule 401]*

Rule 4102 Nuisance

Section 4.0 prohibits discharge of air contaminants, which could cause injury, detriment, nuisance or annoyance to the public. Public nuisance conditions are not expected as a result of these operations provided the equipment is well maintained. Therefore, compliance with this rule is expected.

The following condition will be included on the Authority to Construct permit:

- *No air contaminant shall be released into the atmosphere, which causes a public nuisance. [District Rule 4102]*

California Health & Safety Code 41700 (Health Risk Assessment)

District Policy APR 1905 – Risk Management Policy for Permitting New and Modified Sources specifies that for an increase in emissions associated with a proposed new source or modification, the District perform an analysis to determine the possible impact to the nearest resident or worksite.

A risk management review (RMR) was conducted in District Project N-1082218 for the increase in ammonia emissions due to the addition of the selective catalytic reduction system. This project will not result in any increases in emissions beyond those modeled in District Project N-1082218; therefore, the risk management review from the previous project remains valid. A summary of those RMR results is presented in the following table.

RMR Summary (For Full Results See Appendix V)		
Categories	N-477-10	Facility Totals
Prioritization Score	0.0*	>1
Acute Hazard Index	N/A	0.0
Chronic Hazard Index	N/A	0.03
Maximum individual Cancer Risk (10 ⁻⁶)	N/A	0.89
T-BACT Required?	No	
Special Permit Conditions?	No	

* The prioritization score was less than the District's significance level of 0.05; therefore, no further analysis was performed.

Rule 4201 Particulate Matter Concentration

Section 3.1 prohibits discharge of dust, fumes, or total particulate matter into the atmosphere from any single source operation in excess of 0.1 grain per dry standard cubic foot. As shown in the calculations below, compliance is expected for the glass furnace.

Assuming all PM emitted is PM₁₀,

Hourly PM emission rate = 441.0 lb-PM₁₀/day ÷ 24 hr/day = 18.38 lb-PM/hr
 Glass Furnace Exhaust Flow Rate: 63,052 CFM (Per District Project N-1082218)

Grain Loading = 18.38 lb-PM/hr x 7000 grains/lb ÷ (63,052 CFM x 60 min/hr)

Grain Loading = 0.034 grains/dscf

Rule 4202 Particulate Matter Emission Rate

Per Section 4.1, particulate matter emissions from any source operation shall not exceed the allowable hourly emission rate (E) as calculated using the following formulas:

$$E \text{ (lb/hr)} = 3.59 P^{0.62} \text{ for process rates } \leq 30 \text{ tons/hr, and}$$

$$E \text{ (lb/hr)} = 17.31 P^{0.16} \text{ for process rates } > 30 \text{ tons/hr}$$

Where,

P = process weight in tons/hr

Hourly PM emission rate: 18.38 lb-PM/hr
 Daily Throughput: 630 tons/day
 Hourly Throughput = 630 tons/day ÷ 24 hr/day = 26.25 tons/hr

$$E \text{ (lb/hr)} = 3.59 \times (26.25 \text{ tons/hr})^{0.62}$$

$$E \text{ (lb/hr)} = 27.22 \text{ lb-PM/hr}$$

Since the actual hourly PM emission rate of 18.38 lb-PM/hr is less than the allowable PM emission rate of 27.22 lb-PM/hr, compliance with District Rule 4202 is expected.

Rule 4301 Fuel Burning Equipment

This rule applies to fuel burning equipment, which is defined as any furnace, boiler, apparatus, stack, and all appurtenances thereto, used in the process of burning fuel for the primary purpose of producing heat or power by indirect heat transfer. The glass melting furnace is a direct-fired unit and does not produce heat or power by indirect heat transfer. Therefore, the requirements of District Rule 4301 are not applicable to the glass melting furnace.

District Rule 4354 Glass Melting Furnaces

This rule is applicable to any glass melting furnace. The glass melting furnace in this project is subject to District Rule 4354 requirements.

Section 5.1: NO_x Emission Limits

Section 5.1.1 of this rule lists Tier 2, Tier 3, and Tier 4 NO_x emission requirements for flat glass manufacturing operations. Pursuant to Section 7.2.2.3 of this rule, the glass furnace must be in full compliance with the Tier 4 NO_x emission limits of 3.4 lb-NO_x/ton of glass pulled (Block 24-hour average) and 2.9 lb-NO_x/ton of glass pulled (Rolling 30-day limit) by January 1, 2014 if choosing the Tier 4 enhanced option. Permit conditions limiting NO_x emissions were presented earlier in this evaluation. Compliance is expected with these requirements.

Section 5.2: CO and VOC Emission Limits

Section 5.2.1 of this rule lists CO and VOC emission limits for flat glass manufacturing operations. Pilkington's furnace is an oxygen-assisted unit. The applicable emission limits are: 0.9 lb-CO/ton of glass pulled and 0.10 lb-VOC/ton of glass pulled, each on a rolling three hour average. This furnace currently meets the CO and VOC emission limits; therefore, compliance is expected. Permit conditions limiting CO and VOC emissions were presented earlier in this evaluation.

Section 5.3: SO_x Emission Limits

Section 5.3.2 of this rule lists SO_x emission limitations. Effective January 1, 2014, the furnace must meet SO_x emission limits of 1.7 lb-SO_x/ton of glass produced (Block 24-hour average) and 1.2 lb-SO_x/ton of glass produced (30-day rolling average). Permit conditions limiting SO_x emissions were presented earlier in this evaluation. Compliance is expected with these requirements.

Section 5.4: PM₁₀ emission limits

Section 5.4.1 of this rule lists PM₁₀ emission limitations. Effective on January 1, 2014, the glass furnace must meet a PM₁₀ emissions limit of 0.70 lb-PM₁₀/ton of glass pulled on a block 24-hour average. A permit condition limiting PM₁₀ emissions was presented earlier in this evaluation. Compliance is expected with this requirement.

Section 5.5: Start-up Requirements

Sections 5.5.1 through 5.5.7 list furnace start-up requirements for start-ups associated with a furnace rebuild.

Section 5.5.1 states that the operator must submit a request for start-up exemption to the APCO, ARB, and EPA in conjunction with or in advance of an application for an Authority to Construct associated with a furnace rebuild. Pilkington submitted this request in conjunction with District Project N-1082218. Therefore, this requirement has been satisfied.

Section 5.5.2 states that the operator must submit to the APCO, ARB, and EPA any information necessary to determine the appropriate length of start-up exemption. Pilkington submitted this information in conjunction with District Project N-1082218. A copy of the submittal is included in Appendix VI of this evaluation.

Section 5.5.3 states that the start-up exemption shall begin upon activation of the primary combustion system. Compliance with this requirement is expected. The following condition will be included on the Authority to Construct permit:

- *Startup exemption time period shall not exceed 91 days, beginning from the time of primary combustion system activation. [District Rule 4354]*

Section 5.5.4 states that the approved length of start-up exemption shall be determined by the APCO, ARB, and EPA at the time of ATC issuance, but in any case shall not exceed 104 days if using a typical NO_x control system, or 208 days if using an innovate NO_x control system that meets the requirements of Section 5.5.4.2. This facility is using a typical NO_x control system; therefore, the absolute maximum start-up time allowed is 104 days. Pilkington's start-up plan requests a 91-day start-up exemption period. The following condition will be included on the Authority to Construct permit:

- *Startup exemption time period shall not exceed 91 days, beginning from the time of primary combustion system activation. [District Rule 4354]*

Section 5.5.5 states that, during the startup period, the stoichiometric ratio of the primary furnace combustion system must not exceed 5% excess oxygen. The following condition will be included on the Authority to Construct permit:

- *During start-up period, the stoichiometric ratio of the primary furnace combustion system shall not exceed 5% excess oxygen, as calculated from the actual fuel and oxidant flow measurements for combustion in the furnace. [District Rule 4354]*

Section 5.5.6 states that the emission control system must be in operation as soon as technologically feasible during start-up to minimize emissions. The following condition will be included on the Authority to Construct permit:

- *The emission control systems shall be in operation whenever technologically feasible during startup, idling and shutdown periods. [District Rule 4354]*

Section 5.5.7 states that notifications must be performed and records kept in accordance with Section 6.7. Compliance with this requirement is expected.

Section 5.6: Shutdown

Section 5.6 lists the following shutdown requirements for glass furnaces:

1. The duration of shutdown, as measured from the time the furnace operations drop below the idle threshold to when all emissions from the furnace cease, must not exceed 20 days;
2. The emission control system must be in operation whenever technologically feasible during shutdown to minimize emissions; and
3. Notifications must be performed and records kept in accordance with Section 6.7.

The following conditions will be included on the Authority to Construct permit:

- *The duration of a furnace shutdown shall not exceed 20 days, measured from the time furnace operations drop below the idle threshold specified in Section 3.17 of District Rule 4354 to when all emissions from the furnace cease. [District Rule 4354]*
- *The emission control systems shall be in operation whenever technologically feasible during startup, idling and shutdown periods. [District Rule 4354]*

Section 5.7: Idling Requirements

Section 5.7.1 states that the emission control system shall be in operation whenever technologically feasible during idling to minimize emissions. The following condition will be included on the Authority to Construct permit:

- *The emission control systems shall be in operation whenever technologically feasible during startup, idling and shutdown periods. [District Rule 4354]*

Section 5.7.2 states that the emissions of NO_x, CO, VOC, SO_x, and PM₁₀ during idling shall not exceed the amount as calculated using the following equation:

$$E_{i,max} = E_i \times \text{Capacity}$$

Where,

- $E_{i,max}$ = maximum daily emissions of pollutant i during idling, in pounds of pollutant per day.
- E_i = Applicable emission limit for pollutant i, in pounds pollutant per ton.
- Capacity = Furnace's permitted glass production capacity in tons glass produced per day.

The following condition will be included on the Authority to Construct permit:

- *NO_x, CO, VOC, SO_x, and PM₁₀ emissions during idling shall not exceed the amount as calculated using the following equation: NO_x, CO, VOC, SO_x, or PM₁₀ (lb/day) = Applicable emission limit (lb/ton) x Furnace permitted production capacity (tons/day). [District Rule 4354]*

Section 5.7.3 states that notifications must be performed and records kept in accordance with Section 6.7. Compliance is expected with this requirement.

Section 5.8 Compliance Determination

This section states that any source test result, CEMS, or alternate emission monitoring method averaged value exceeding the applicable emission limits in Section 5.1, Section 5.2, Section 5.3, or Section 5.4 will constitute a violation of the rule. Compliance is expected with this requirement. A condition will be included on the Authority to Construct permit.

Section 5.9: Monitoring Requirements

Section 5.9.1 lists NO_x emission monitoring requirements. The operator of any glass melting furnace must implement a NO_x CEMS that meets the requirements of Section 6.6. The applicant is proposing the use of a NO_x CEMS on this furnace and compliance with this requirement is expected. Permit conditions outlining the CEMS requirements were included earlier in this evaluation.

Section 5.9.2.1 requires each furnace subject to Table 2 CO limits to implement the use of a CO CEMS that meets the requirements of Section 6.6.1. Section 5.9.2.3 states that in lieu of installing and operating a CEMS for CO, an operator may propose an alternate monitoring scheme for CO. Pilkington previously received approval of an alternate monitoring scheme for CO in District Project N-1082218. The following conditions will be included on the Authority to Construct permit:

- *The permittee shall establish minimum excess oxygen (%) in the flue gas during the initial source test after installing the emissions control system while demonstrating compliance with CO and VOC emission limits of this permit. The established limit shall be listed on the Permit to Operate. [District Rules 2201 and 4354]*
- *Excess oxygen (%) in the flue gas shall be measured continuously. The measured excess oxygen (%) shall be averaged over 30 -consecutive-minute to demonstrate compliance with the established minimum excess oxygen (%). The averaged reading shall be recorded each day at the frequency specified in this condition. [District Rules 2201 and 4354]*

Section 5.9.2.2 requires each furnace subject to Table 2 VOC limits to implement the use of a VOC CEMS that meets the requirements of Section 6.6.1. Section 5.9.2.3 states that in lieu of installing and operating a CEMS for VOC, the operator may propose an alternate monitoring scheme for VOC's. Pilkington previously received approval of an alternate monitoring scheme for VOC's in District Project N-1082218. The following conditions will be included on the Authority to Construct permit:

- *The permittee shall establish minimum excess oxygen (%) in the flue gas during the initial source test after installing the emissions control system while demonstrating compliance with CO and VOC emission limits of this permit. The established limit shall be listed on the Permit to Operate. [District Rules 2201 and 4354]*
- *Excess oxygen (%) in the flue gas shall be measured continuously. The measured excess oxygen (%) shall be averaged over 30 -consecutive-minute to demonstrate compliance with the established minimum excess oxygen (%). The averaged reading shall be recorded each day at the frequency specified in this condition. [District Rules 2201 and 4354]*

Section 5.9.3.1 requires each furnace, subject to Section 5.3, to implement a SOx CEMS that meets the requirements of Section 6.6.1 and that is approved, in writing, by the APCO and EPA. Section 5.9.3.2 states that in lieu of installing and operating a CEMS for SOx, the operator may propose an alternate monitoring scheme for SOx. Pilkington previously received approval of an alternate monitoring scheme for SOx in District Project N-1082218. The following conditions will be included on the Authority to Construct permit:

- *The minimum injection rate of hydrated lime into the dry scrubber shall be established during the initial source test while demonstrating compliance with SOx emission limits of this permit. The established reading shall be listed on the Permit to Operate. [District Rules 2201 and 4354]*
- *The hydrated lime injection rate shall be measured and recorded every 15-minutes by a loss-in-weight feeder consisting of a screw feeder on load cells. The recorded injection rate data shall be averaged over a 60-consecutive-minute block to demonstrate compliance with the established minimum injection rate of hydrated lime. The averaged readings shall be recorded each day the scrubber operates. Upon detecting any excursion, the permittee shall investigate the excursion and take corrective action to minimize excessive emissions and prevent recurrence of the excursion as expeditiously as practicable. [District Rules 2201 and 4354, and 40 CFR Part 64]*
- *The temperature range of the laden stream entering the dry scrubber shall be established during the initial source test while demonstrating compliance with SOx emission limits. The established temperature range shall be listed on the Permit to Operate. [District Rules 2201 and 4354]*
- *The temperature of the laden stream entering the scrubber shall be measured and recorded every 15-minutes using a thermocouple. The recorded temperature data shall be averaged over a 60-consecutive-minute block to demonstrate compliance with the established temperature range. The averaged readings shall be recorded each day the scrubber operates. Upon detecting any excursion, the permittee shall investigate the excursion and take corrective action to minimize excessive emissions and prevent recurrence of the excursion as expeditiously as practicable. [District Rules 2201 and 4354, and 40 CFR Part 64]*

Section 5.9.4.1 requires the operators to propose key system operating parameter(s) and frequency of monitoring and recording of those parameters, for PM10 monitoring. Pilkington previously received approval of an alternate monitoring scheme for PM10 in District Project N-1082218. The following conditions will be included on each Authority to Construct permit:

- *The voltage and current across each field of the ESP shall be established during the initial source test while demonstrating compliance with PM10 emission limits of this permit. The established readings shall be listed on the Permit to Operate. [District Rules 2201 and 4354]*
- *The voltage and current across each field of the ESP shall be measured and recorded every 15-minutes. The recorded voltage and current data shall be averaged over a 60-consecutive-minute block to demonstrate compliance with the established voltage and current readings across each field of the ESP. The averaged readings shall be recorded each day the ESP operates. Upon detecting any excursion, the permittee shall investigate the excursion and take corrective action to minimize excessive emissions and prevent recurrence of the excursion as expeditiously as practicable. [District Rules 2201 and 4354, and 40 CFR Part 64]*

Section 5.10: Routine Maintenance of Add-On Emission Control Systems

Section 5.10 states that during routine maintenance of add-on emission control system a glass furnace is exempt from the emission requirements listed in Sections 5.1 through 5.4 if:

1. Routine maintenance in each calendar year does not exceed 144 hours total for all add-on controls.
2. Routine maintenance is conducted in a manner consistent with good air pollution control practices for minimizing emissions.

The following conditions will be included on the Authority to Construct permit:

- *The exhaust from the glass melting furnace shall be vented through an operational SOx scrubber, electrostatic precipitator, and selective catalytic reduction system except during periods of furnace startup (when technologically infeasible), furnace idle (when technologically infeasible), furnace shutdown (when technologically infeasible) and during add-on control system maintenance. Scheduled maintenance of the add-on control systems shall be accomplished during periods of furnace idling whenever possible. [District Rules 2201 and 4354]*
- *The NOx, SOx and PM10 emission limits of this permit shall not apply during routine maintenance of the respective add-on control systems, provided the routine maintenance in each calendar year does not exceed 144 hours total for all add-on controls and routine maintenance is conducted in a manner consistent with good air pollution control practices for minimizing emissions. [District Rule 4354]*

Section 6.1: Permitted Glass Production Capacity and Fuel Use Capacity

Section 6.1 states that on and after October 1, 2009, each glass melting furnace permit shall include the furnace's permitted glass production capacity in tons of glass pulled per day as a permit condition. Conditions limiting the furnaces glass production capacity were presented earlier in this evaluation. Compliance is expected with this requirement.

Section 6.2: Operation Records

Section 6.2 lists recordkeeping requirements that apply through December 31, 2010. This date has passed; therefore, Section 6.2 requirements are not applicable.

Section 6.3: Operation Records

Section 6.3.1 states that the applicant shall keep daily records of the following items:

- 6.3.1.1: Total hours of operation;
- 6.3.1.2: The quantity of glass pulled from each furnace;
- 6.3.1.3: NO_x emission rate in lb/ton of glass pulled;
- 6.3.1.4: CO emission rate in lb/ton of glass pulled, if a CEMS is used;
- 6.3.1.5: VOC emission rate in lb/ton of glass pulled, if a CEMS is used;
- 6.3.1.6: SO_x emission rate in lb/ton of glass pulled, if a CEMS is used;
- 6.3.1.7: PM₁₀ emission rate in lb/ton of glass pulled, if a CEMS is used;
- 6.3.1.8: For container glass furnaces that are oxy-fuel fired:
 - 6.3.1.8.1: The weight of mixed color mix cullet used;
 - 6.3.1.8.2: The total amount of cullet used by weight; and
 - 6.3.1.8.3: The ratio expressed in percent of mixed color mix weight to total cullet weight

The applicant is proposing to keep the appropriate records for the applicable items of the items listed above. Therefore, compliance is expected. The following condition will be included on the Authority to Construct permit:

- *The permittee shall keep the following daily records: 1) The NO_x emission rate in lb/ton of glass pulled (block 24-hr average), 2) The NO_x emission rate in lb/ton of glass pulled (rolling 30-day average), 3) The quantity of glass pulled from the furnace (tons/day), and 4) The total hours of operation. [District Rules 2201 and 4354]*

Section 6.3.2 states that for pollutants monitored using an approved parametric monitoring arrangement, operators shall record the operating values of the key system operating parameters at the approved recording frequency. Compliance with this requirement is expected. The following condition will be included on the Authority to Construct permit:

- *Permittee shall maintain records of the following: 1) Source tests and source test results, 2) the acceptable range for each approved key system operating parameter, as established during source tests, 3) The operating values of the key system operating parameters at the approved recording frequency, 4) any maintenance and repair, and 5) any malfunctions. [District Rule 4354]*

Section 6.3.3 requires operators to keep the following records:

- 6.3.3.1: Source tests and source test results
- 6.3.3.2: The acceptable range for each approved key system operating parameter, as established during source test;
- 6.3.3.3: Maintenance and repair; and
- 6.3.1.4: Malfunction.

The applicant is proposing to keep the appropriate records for the items listed above. The condition listed above includes the requirement to keep these records.

Section 6.3.4 requires the operator to retain records specified in Sections 6.3.1 through 6.3.3 for a period of five years; make the records available on site during normal business hours to the APCO, ARB, or EPA; and submit the records to the APCO, ARB, or EPA upon request. Compliance with this requirement is expected. The following condition will be included on the Authority to Construct permit:

- *The operator shall retain all records required by this permit for a period of at least five years; make the records available on site during normal business hours to the APCO, ARB, or EPA; and submit the records to the APCO, ARB, or EPA upon request. [District Rules 1070, 2201, and 4354]*

Section 6.4: Compliance Source Testing

Section 6.4.1 requires each glass melting furnace or a furnace battery to be source tested at least once every calendar year, but not more than every 18 months and not sooner than every 6 months to demonstrate compliance with the applicable requirements of Section 5.0. Compliance with this requirement is expected. A permit condition enforcing this requirement was presented earlier in this evaluation.

Section 6.4.2 requires the source test conditions to be representative of normal operations, but not less than 60 percent of the permitted glass production capacity. The following condition will be included on the Authority to Construct permit:

- *Source test conditions shall be representative of normal operations, but not less than 60% of the permitted glass production capacity. [District Rule 4354]*

Section 6.4.3 requires operators using alternate monitoring systems to, during the source test, monitor and record, at a minimum, all operating data for each parameter, fresh feed rate, and flue gas flow rate and submit that data with the test report. Compliance with this requirement is expected. The conditions presented earlier in this evaluation include this requirement.

Section 6.4.4 requires states that the arithmetic average of three 30-consecutive minute source test runs must be used to determine compliance with the NO_x, CO, VOC, and SO_x emission limits. Compliance with this requirement is expected. The following condition will be included on the Authority to Construct permit:

- *For source testing purposes, the arithmetic average of three 30-consecutive-minute test runs shall be used to determine compliance with NO_x, CO, VOC, SO_x, and NH₃ emission limits. [District Rules 2201 and 4354]*

Section 6.4.5 requires states that the arithmetic average of three 60-consecutive minute source test runs must be used to determine compliance with the PM₁₀ emission limits. Compliance with this requirement is expected. The following condition will be included on the Authority to Construct permit:

- *For source testing purposes, the arithmetic average of three 60-consecutive-minute test runs shall be used to determine compliance with PM10 emission limits. [District Rule 4354]*

Section 6.4.6 states that for a given pollutant, if two of the three runs individually demonstrate emission above the applicable limit, the test cannot be used to demonstrate compliance for the furnace, even if the averaged emissions of all three test runs is less than the applicable limit. The following condition will be included on the Authority to Construct permit:

- *For source testing purposes, if two of the three runs individually demonstrate emissions above the applicable limit, the test cannot be used to demonstrate compliance for the furnace, even if the averaged emissions of all three test runs is less than the applicable limit. [District Rule 4354]*

Section 6.5: Test Methods

Section 6.5 states that Compliance with the requirements of 5.0 shall be determined in accordance with the following source test procedures or their equivalents approved by the EPA, ARB, and the APCO:

Pollutant/Parameter to be Measured	Test Methods
Oxides of Nitrogen	EPA Method 7E, EPA Method 19, or ARB Method 100
Carbon Monoxide (ppmv)	EPA Method 10 or ARB Method 100
Volatile Organic Compounds (ppmv)	EPA Method 25A expressed in terms of carbon, or ARB Method 100. EPA Method 18 or ARB method 422 shall be used to determine emissions of exempt compounds.
Stack Gas Oxygen, Carbon Dioxide, Excess Air, and Dry Molecular Weight	EPA Method 3 or 3A, or ARB Method 100
Stack Gas Velocity or Volumetric Flow Rate	EPA Method 2
Oxides of Sulfur	EPA Method 6C, EPA Method 8, or ARB Method 100
Sulfur Content of Liquid Fuel	ASTM D 6248-99 or ASTM D5433-99
Filterable PM10	EPA Method 5; EPA Method 201; or EPA Method 201A. An operator choosing EPA Method 5 shall count all PM as PM10.
Condensable PM10	EPA Method 202

The following conditions will be included on the Authority to Construct permit:

- *Source testing to measure oxides of nitrogen (as NO2) (ppmv) shall be conducted using EPA Method 7E, or ARB Method 100, or oxides of nitrogen (as NO2) (heat input basis) shall be conducted using EPA Method 19 and in accordance with Rule 1081, section 6.0 (12/16/93). Other test methods may be substituted as approved by the EPA, ARB and the APCO. [District Rules 1081 and 4354]*

- *Source testing to measure Carbon Monoxide (CO) (ppmv) shall be conducted using EPA Method 10 or ARB Method 100, and in accordance with Rule 1081, section 6.0 (12/16/93). Other test methods may be substituted as approved by the EPA, ARB and the APCO. [District Rules 1081 and 4354]*
- *Source testing to measure Volatile Organic Compounds (VOC) (ppmv) shall be conducted using EPA Method 25A, expressed in terms of carbon or ARB Method 100, EPA Method 18 or ARB Method 422 shall be used to determine emissions of exempt compounds, and testing shall be conducted in accordance with District Rule 1081, Section 6.0 (12/16/93). Other test methods may be substituted as approved by the EPA, ARB and the APCO. [District Rules 1081 and 4354]*
- *Stack gas oxygen, carbon dioxide, excess air, and dry molecular weight shall be determined using EPA Method 3 or 3A or ARB Method 100. Other test methods may be substituted as approved by the EPA, ARB and the APCO. [District Rules 1081 and 4354]*
- *Stack gas velocity and volumetric flow rate shall be determined using EPA Method 2. Other test methods may be substituted as approved by the EPA, ARB and the APCO. [District Rules 1081 and 4354]*
- *Source testing to measure oxides of sulfur (as SO₂) shall be conducted using EPA Method 6C, EPA Method 8, or ARB Method 100, and in accordance with Rule 1081, section 6.0 (12/16/93). Other test methods may be substituted as approved by the EPA, ARB and the APCO. [District Rules 1081, 4354, and 4801]*
- *Source testing to measure filterable PM₁₀ emissions shall be conducted using EPA Method 5, EPA Method 201, or EPA Method 201A. An operator choosing EPA Method 5 shall count all PM collected as PM₁₀. The test shall be conducted in accordance with Rule 1081, section 6.0 (12/16/93). Other test methods may be substituted as approved by the EPA, ARB and the APCO. [District Rules 1081 and 4354, and 40 CFR 52.21]*
- *Source testing to measure condensable PM₁₀ emissions shall be conducted using EPA 202 in accordance with the procedure listed in sections 6.5.9.2.1 and 6.5.9.2.2, and 6.5.9.2.3 of District Rule 4354, and in accordance with Rule 1081, section 6.0 (12/16/93). Other test methods may be substituted as approved by the EPA, ARB and the APCO. [District Rules 1081 and 4354]*

Section 6.6: Emission Monitoring Systems

Section 6.6.1 states that an approved CEMS must comply with all of the following requirements:

1. Code of Federal Regulations title 40 CFR Part 51;
2. 40 CFR Part 60.7 (Notification and Recordkeeping);
3. 40 CFR Part 60.13 (Monitoring Requirements);
4. 40 CFR Part 60 Appendix B (Performance Specifications);
5. 40 CFR Part 60 Appendix F (Quality Assurance Procedures);
6. and the applicable sections of District Rule 1080 (Stack Monitoring).

The NOx CEMS is expected to comply with the above requirements.

Section 6.6.2 states that an approved alternate emissions monitoring method must be capable of determining the furnace emissions on an hourly basis and must comply with the following requirements:

1. 40 CFR 64 (Compliance Assurance Monitoring); and
2. 40 CFR 60.13 (Monitoring Requirements).

The proposed CO, VOC, SO_x, and PM₁₀ alternate monitoring schemes will comply with the above requirements.

Section 6.7: Notification and Records for Start-up, Shutdown, and Idling

Section 6.7.1 states that the operator of any glass melting furnace claiming an exemption under Section 4.4 must notify the APCO by telephone at least 24 hours before initiating idling, shutdown, or start-up. The notification must include the date and time for the start of the exempt operation, reason for performing the operation, and an estimated completion date. The following condition will be included on the Authority to Construct permit:

- *The emission limitations of District Rule 4354 shall not apply during periods of start-up, shutdown, and idling, as defined by District Rule 4354. The permittee shall notify the District at least 24 hours prior to initiating idling, shutdown, or startup of the glass furnace and this notification shall include: The date and time of the start of the exempt operation, reason for performing the operation, and an estimated completion date. The permittee shall notify the District by telephone within 24 hours after completion of the operation and shall maintain operating records and/or support documentation necessary to claim exemption. [District Rule 4354]*

Section 6.8: Records for Exempt Furnaces

Section 6.8 of this rule applies to exempt furnaces. The furnace in this project is not exempt. Therefore, the requirements of Section 6.8 are not applicable.

Conclusion:

Compliance with all of the requirements of District Rule 4354 is expected.

District Rule 4801 Sulfur Compounds

Per Section 3.1, a person shall not discharge into the atmosphere sulfur compounds, which would exist as a liquid or gas at standard conditions, exceeding in concentration at the point of discharge: 0.2 % by volume calculated as SO₂ on a dry basis averaged over 15 consecutive minutes:

$$\text{Volume SO}_2 = nRT/P$$

$$n = \text{moles SO}_2$$

$$T (\text{standard temperature}) = 60^\circ \text{F or } 520^\circ \text{R}$$

$$R (\text{universal gas constant}) = \frac{10.73 \text{ psi} \cdot \text{ft}^3}{\text{lb} \cdot \text{mol} \cdot ^\circ \text{R}}$$

Assumption

The F-Factor for the glass furnace is: 8578 dscf/MMBtu (EPA F-Factor, Natural Gas)

The SO_x emission factor (EF) was determined using the following calculation:

$$\text{SO}_x = (1,071.0 \text{ lb/day} \div 24 \text{ hr/day}) \div 200 \text{ MMBtu/hr} = 0.22 \text{ lb/MMBtu}$$

$$0.22 \text{ lb/MMBtu} \times \frac{1 \text{ MMBtu}}{8,578 \text{ scf}_{\text{exhaust}}} \times \frac{1 \text{ lb mol}}{64 \text{ lb SO}_2} \times \frac{10.73 \text{ psi ft}^3}{\text{lb mol } ^\circ \text{R}} \times \frac{520^\circ \text{R}}{14.7 \text{ psi}} \times 1,000,000 \text{ ppm} = 152.1 \text{ ppmv}$$

Since 152.1 ppmv is \leq 2000 ppmv, the furnace is expected to comply with Rule 4801.

California Environmental Quality Act (CEQA)

CEQA requires each public agency to adopt objectives, criteria, and specific procedures consistent with CEQA Statutes and the CEQA Guidelines for administering its responsibilities under CEQA, including the orderly evaluation of projects and preparation of environmental documents. The District adopted its *Environmental Review Guidelines* (ERG) in 2001. The basic purposes of CEQA are to:

- Inform governmental decision-makers and the public about the potential, significant environmental effects of proposed activities;
- Identify the ways that environmental damage can be avoided or significantly reduced;
- Prevent significant, avoidable damage to the environment by requiring changes in projects through the use of alternatives or mitigation measures when the governmental agency finds the changes to be feasible; and
- Disclose to the public the reasons why a governmental agency approved the project in the manner the agency chose if significant environmental effects are involved.

The District performed an Engineering Evaluation (this document) for the proposed project and determined that all project specific emission units are exempt from Best Available Control Technology (BACT) requirements. Furthermore, the District has determined that potential emission increases would have a less than significant health impact on sensitive receptors.

Issuance of permits for emissions units not subject to BACT requirements and with health impact less than significant is a matter of ensuring conformity with applicable District rules and regulations and does not require discretionary judgment or deliberation. Thus, the District concludes that this permitting action constitutes a ministerial approval. Section 21080 of the Public Resources Code exempts from the application of CEQA those projects over which a public agency exercises only ministerial approval. Therefore, the District finds that this project is exempt from the provisions of CEQA.

IX. Recommendation

Compliance with all applicable rules and regulations is expected. Issue Authority to Construct permit N-477-10-12 subject to the permit conditions on the attached draft Authority to Construct permit in Appendix I.

X. Billing Information

Annual Permit Fees			
Permit Number	Fee Schedule	Fee Description	Previous Fee Schedule
N-477-10-12	3020-02-H	200 MMBtu/hr	3020-02-H

Appendices

- I: Draft Authority to Construct Permit
- II: Current Permit to Operate
- III. Process Diagram
- IV: SSPE1 Calculations
- V: Risk Management Review
- VI. Startup Exemption Submittal
- VII. Quarterly Net Emissions Change (QNEC)
- VIII. Early Enhanced Tier 4 Request and District Approval Letter

APPENDIX I

Draft Authority to Construct Permit

San Joaquin Valley
Air Pollution Control District

AUTHORITY TO CONSTRUCT

ISSUANCE DATE: DRAFT
DRAFT

PERMIT NO: N-477-10-12

LEGAL OWNER OR OPERATOR: PILKINGTON NORTH AMERICA, INC
MAILING ADDRESS: 500 E LOUISE AVE
LATHROP, CA 95330

LOCATION: 500 E LOUISE AVE
LATHROP, CA 95330

EQUIPMENT DESCRIPTION:

MODIFICATION OF 200 MMBTU/HR GLASS MELTING FURNACE WITH ECLIPSE COMBUSTION MODEL WRSP10.XX LOW NOX BURNERS AND 3R NOX EMISSIONS CONTROL SYSTEM TO: (1) INSTALL A PERMIT-EXEMPT COOLING TOWER (RULE 2020 6.2); (2) TO INSTALL A DRY SOX SCRUBBER AND LOWER THE SOX EMISSION LIMIT FOR RULE 4354 COMPLIANCE; (3) TO INSTALL A DRY ELECTROSTATIC PRECIPITATOR AND LOWER THE PM10 EMISSION LIMIT FOR RULE 4354 COMPLIANCE; (4) TO INSTALL A SELECTIVE CATALYTIC REDUCTION SYSTEM AND LOWER THE NOX EMISSION LIMIT FOR RULE 4354 COMPLIANCE (EARLY ENHANCED OPTION); (5) TO REMOVE THE PERMIT CONDITIONS RELATED TO THE 3R NOX CONTROL SYSTEM; AND (6) TO ESTABLISH THE DAILY MAXIMUM GLASS PULL RATE. POST-PROJECT EQUIPMENT DESCRIPTION: 200 MMBTU/HR FLAT GLASS MELTING FURNACE WITH ECLIPSE COMBUSTION MODEL WRSP10.XX LOW NOX BURNERS AND SERVED BY A COOLING TOWER (PERMIT-EXEMPT), A DRY SOX SCRUBBER, A DRY ELECTROSTATIC PRECIPITATOR (ESP), AND A SELECTIVE CATALYTIC REDUCTION (SCR) SYSTEM

CONDITIONS

1. {1830} This Authority to Construct serves as a written certificate of conformity with the procedural requirements of 40 CFR 70.7 and 70.8 and with the compliance requirements of 40 CFR 70.6(c). [District Rule 2201] Federally Enforceable Through Title V Permit
2. {1831} Prior to operating with modifications authorized by this Authority to Construct, the facility shall submit an application to modify the Title V permit with an administrative amendment in accordance with District Rule 2520 Section 5.3.4. [District Rule 2520, 5.3.4] Federally Enforceable Through Title V Permit
3. Upon the implementation of Authority to Construct N-477-10-12, Authority to Construct N-477-10-10 shall be cancelled. [District Rule 2201] Federally Enforceable Through Title V Permit
4. The particulate matter emissions shall not exceed 0.1 grains/dscf in concentration. [District Rule 4201] Federally Enforceable Through Title V Permit

CONDITIONS CONTINUE ON NEXT PAGE

YOU MUST NOTIFY THE DISTRICT COMPLIANCE DIVISION AT (209) 557-6400 WHEN CONSTRUCTION IS COMPLETED AND PRIOR TO OPERATING THE EQUIPMENT OR MODIFICATIONS AUTHORIZED BY THIS AUTHORITY TO CONSTRUCT. This is NOT a PERMIT TO OPERATE. Approval or denial of a PERMIT TO OPERATE will be made after an inspection to verify that the equipment has been constructed in accordance with the approved plans, specifications and conditions of this Authority to Construct, and to determine if the equipment can be operated in compliance with all Rules and Regulations of the San Joaquin Valley Unified Air Pollution Control District. Unless construction has commenced pursuant to Rule 2050, this Authority to Construct shall expire and application shall be cancelled two years from the date of issuance. The applicant is responsible for complying with all laws, ordinances and regulations of all other governmental agencies which may pertain to the above equipment.

Seyed Sadredin, Executive Director, APCO

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DAVID WARNER, Director of Permit Services

N-477-10-12 Oct 4 2012 3 12PM - HARADERJ Joint Inspection NOT Required

5. The maximum allowable emission rate for Particulate Matter shall be determined by the following equations: $E = 3.59 * P^{0.62}$ for $P < 30$ tons/hour or $17.31 * P^{0.16}$ for $P > 30$ tons/hour. [District Rule 4202] Federally Enforceable Through Title V Permit
6. No air contaminants shall be discharged into the atmosphere for a period or periods aggregating more than 3 minutes in any one hour which is as dark or darker than Ringelmann #1 or equivalent to 20% opacity and greater, unless specifically exempted by District Rule 4101, by using EPA method 9. If the equipment or operation is subject to a more stringent visible emission standard as prescribed in a permit condition, the more stringent visible emission limit shall supersede this condition. [District Rule 4101, and San Joaquin County Rule 401] Federally Enforceable Through Title V Permit
7. The concentration of sulfur compounds in the exhaust from this unit shall not exceed 0.2% by volume as measured on a dry basis over a 15 minute period. [San Joaquin County Rule 407 and District Rule 4801] Federally Enforceable Through Title V Permit
8. {98} No air contaminant shall be released into the atmosphere which causes a public nuisance. [District Rule 4102]
9. The facility shall not use commercial arsenic as a raw material in the production process. [40 CFR 61 Subpart N] Federally Enforceable Through Title V Permit
10. If the operator begins producing a glass product in this furnace that includes one or more glass manufacturing metal HAPs as a raw material and the operator produces at least 50 tons per year of that glass product, then the operator shall comply with the glass furnace emission limits specified in 40 CFR 63.11451 within 2 years of the date of which production of the glass product that contains the glass manufacturing metal HAPs commenced. [40 CFR Part 63.11450(d)] Federally Enforceable Through Title V Permit
11. The furnace fill rate shall not exceed 750 tons in any one day. [District NSR Rule] Federally Enforceable Through Title V Permit
12. The glass pull rate shall not exceed 630 tons in any one day. [District Rules 2201 and 4354] Federally Enforceable Through Title V Permit
13. The glass pull rate shall not exceed 219,000 tons in any rolling 12-month period. [District Rules 2201 and 4354] Federally Enforceable Through Title V Permit
14. When firing on LPG, the daily fuel usage rate shall not exceed 64,066 gallons. [District NSR Rule] Federally Enforceable Through Title V Permit
15. When firing on natural gas, the daily fuel usage rate shall not exceed 5,942,875 cubic feet. [District NSR Rule] Federally Enforceable Through Title V Permit
16. NOx emissions from the glass furnace, except during periods of start-up, shutdown, and idling, shall not exceed any of the following limits: 89.25 lb-NOx/hr or 3.4 lb-NOx/ton of glass pulled, based on a block 24-hour average. The emission limits in this condition also enforce emission reductions granted by certificate number 87-6. [District Rules 2201, 2301 and 4354] Federally Enforceable Through Title V Permit
17. NOx emissions from the glass furnace, except during periods of start-up, shutdown, and idling, shall not exceed any of the following limits: 76.13 lb-NOx/hr or 2.9 lb-NOx/ton of glass pulled, based on a 30-day rolling average. The emission limits in this condition also enforce emission reductions granted by certificate number 87-6. [District Rules 2201, 2301, and 4354] Federally Enforceable Through Title V Permit
18. SOx emissions from the glass furnace, except during periods of start-up, shutdown, and idling, shall not exceed either of the following limits: 44.68 lb-SOx/hr or 1.7 lb-SOx/ton of glass pulled, based on a block 24-hour average. [District Rules 2201 and 4354, and 40 CFR 52.21] Federally Enforceable Through Title V Permit
19. SOx emissions from the glass furnace, except during periods of start-up, shutdown, and idling, shall not exceed either of the following limits: 31.50 lb-SOx/hr or 1.2 lb-SOx/ton of glass pulled, based on a 30-day rolling average. [District Rules 2201 and 4354, and 40 CFR 52.21] Federally Enforceable Through Title V Permit
20. PM10 emissions (filterable and condensable) from the glass furnace, except during periods of start-up, shutdown, and idling, shall not exceed either of the following limits: 18.38 lb-PM10/hr or 0.70 lb-PM10/ton of glass pulled, based on a block 24-hour average. [District Rules 2201 and 4354, and 40 CFR 52.21] Federally Enforceable Through Title V Permit

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CONDITIONS CONTINUE ON NEXT PAGE

21. CO emissions from the glass furnace, except during periods of start-up, shutdown, and idling, shall not exceed 0.9 lb-CO/ton of glass pulled, based on a 3-hour rolling average. [District Rules 2201 and 4354] Federally Enforceable Through Title V Permit
22. VOC emissions from the glass furnace, except during periods of start-up, shutdown, and idling, shall not exceed 0.10 lb-VOC/ton of glass pulled, based on a 3-hour rolling average. [District Rules 2201 and 4354] Federally Enforceable Through Title V Permit
23. VOC emissions from the glass furnace shall not exceed 21.0 lb in any one day. [District Rule 2201]
24. Ammonia (NH₃) emissions, as measured in the SCR exhaust, shall not exceed 10 ppmvd @ 12% O₂. [District Rule 2201] Federally Enforceable Through Title V Permit
25. A block 24-hour average is defined as the arithmetic average of hourly emission rates of a furnace as measured over 24 one-hour periods, daily, from 12:00 AM to 11:59 PM, excluding periods of system calibration. [District Rule 4354] Federally Enforceable Through Title V Permit
26. A rolling average is defined as the arithmetic average of the emission rates of a furnace over a contiguous period, excluding periods of system calibration. For rolling 30-day averages, the averaged emissions are daily emissions and the contiguous period is 30 days. For rolling 24-hour averages, the averaged emissions are hourly emissions and the contiguous period is 24 hours. For rolling three hour averages, the averaged emissions are hourly emissions and the contiguous period is three hours. [District Rule 4354] Federally Enforceable Through Title V Permit
27. Start-up is defined as the period of time, after initial construction or a furnace rebuild, during which a glass melting furnace is heated to operating temperature by the primary furnace combustion system and instrumentation are brought to stabilization. Shutdown is defined as the period of time during which a glass melting furnace is taken from an operational to a non-operational status by allowing it to cool down from its operating temperature to a cold or ambient temperature as the fuel supply is turned off. Idling is defined as the operation of the furnace at less than 25 percent of the permitted production capacity or fuel use capacity as stated on the Permit to Operate. [District Rule 4354] Federally Enforceable Through Title V Permit
28. The emission limitations of District Rule 4354 shall not apply during periods of start-up, shutdown, and idling, as defined by District Rule 4354. The permittee shall notify the District at least 24 hours prior to initiating idling, shutdown, or startup of the glass furnace and this notification shall include: The date and time of the start of the exempt operation, reason for performing the operation, and an estimated completion date. The permittee shall notify the District by telephone within 24 hours after completion of the operation and shall maintain operating records and/or support documentation necessary to claim exemption. [District Rule 4354] Federally Enforceable Through Title V Permit
29. Startup exemption time period shall not exceed 91 days, beginning from the time of primary combustion system activation. [District Rule 4354] Federally Enforceable Through Title V Permit
30. During start-up period, the stoichiometric ratio of the primary furnace combustion system shall not exceed 5% excess oxygen, as calculated from the actual fuel and oxidant flow measurements for combustion in the furnace. [District Rule 4354] Federally Enforceable Through Title V Permit
31. The duration of a furnace shutdown shall not exceed 20 days, measured from the time furnace operations drop below the idle threshold specified in Section 3.17 of District Rule 4354 to when all emissions from the furnace cease. [District Rule 4354] Federally Enforceable Through Title V Permit
32. NO_x, CO, VOC, SO_x, and PM₁₀ emissions during idling shall not exceed the amount as calculated using the following equation: NO_x, CO, VOC, SO_x, or PM₁₀ (lb/day) = Applicable emission limit (lb/ton) x Furnace permitted production capacity (tons/day). [District Rule 4354] Federally Enforceable Through Title V Permit
33. The emission control systems shall be in operation whenever technologically feasible during startup, idling and shutdown periods. [District Rule 4354] Federally Enforceable Through Title V Permit
34. Saltcake or gypsum may be used as a batch constituent as a source of sulfate. [District NSR Rule] Federally Enforceable Through Title V Permit

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CONDITIONS CONTINUE ON NEXT PAGE

35. When using gypsum, the emissions of oxides of sulfur (referenced as SO₂) shall not exceed 30 pounds per hour when the gypsum usage is less than or equal to 10.7 pounds per 1,000 pounds of sand in the batch. [District NSR Rule and 40 CFR 52.21] Federally Enforceable Through Title V Permit
36. If gypsum usage exceeds 10.7 lb/1000 lb of sand in the batch, the maximum allowable emissions shall be determined by following equation: $S_{MAX} = (6.3 * GYPRATE) - 39.5$; where S_{MAX} = allowable SO_x (referenced as SO₂) and $GYPRATE$ = gypsum usage (lb/1000 lb sand). [District NSR Rule and 40 CFR 52.21] Federally Enforceable Through Title V Permit
37. When using saltcake, the emissions of oxides of sulfur (referenced as SO₂) shall not exceed 30 pounds per hour when the saltcake usage is less than or equal to 8 pounds per 1000 pounds of sand in the batch. [District NSR Rule] Federally Enforceable Through Title V Permit
38. If saltcake usage exceeds 8 lb/1000 lb of sand in the batch, the maximum allowable emissions shall be determined by the following equation: $S_{MAX} = (8.5 * SLTRATE) - 39.5$; where S_{MAX} = allowable SO_x (referenced as SO₂) and $SLTRATE$ = saltcake usage (lb/1000 lb sand). [District NSR Rule] Federally Enforceable Through Title V Permit
39. All equipment, facilities, or systems installed or used to achieve compliance with the terms and conditions of the Federal Prevention of Significant Deterioration permit shall at all times be maintained in good working order and be operated as efficiently as possible to minimize air pollutant emissions. [40 CFR 52.21] Federally Enforceable Through Title V Permit
40. Source testing to measure the NO_x, SO_x, PM₁₀, CO, VOC, NH₃ in terms of each unit specified in this permit shall be conducted within 60 days after the end of the start-up exemption period and at least once every calendar year under all applicable permitted operating scenarios (low gypsum, high gypsum, low salt cake, high salt cake) and during periods of high furnace fill rate, but not more than every 18 months and not sooner than every 6 months to demonstrate compliance with emission limits of this permit. [District Rules 1081, 2201, 2520, and 4354] Federally Enforceable Through Title V Permit
41. All required source testing shall conform to the compliance testing procedures described in District Rule 1081. [District Rule] Federally Enforceable Through Title V Permit
42. The exhaust stack shall be equipped with permanent provisions to allow collection of stack gas samples consistent with EPA test methods and shall be equipped with safe permanent provisions to sample stack gases with a portable NO_x, CO, and O₂ analyzer during District inspections. The sampling ports shall be located in accordance with the CARB regulation titled California Air Resources Board Air Monitoring Quality Assurance Volume VI, Standard Operating Procedures for Stationary Source Emission Monitoring and Testing. [District Rule 1081] Federally Enforceable Through Title V Permit
43. Compliance demonstration (source testing) shall be District witnessed or authorized and samples shall be collected by a certified testing laboratory. Source testing shall be conducted using the test methods and procedures specified in this permit. The District must be notified 45 days prior to any compliance source test, and a source test plan must be submitted for approval 30 days prior to testing. The results of each source test shall be submitted to the District within 60 days thereafter. [District Rule 1081] Federally Enforceable Through Title V Permit
44. Source testing to measure emissions when firing on LPG fuel need not be performed if the LPG fuel usage for this furnace does not exceed 100 hours during any one calendar year. Once 100 hours of operation using LPG fuel is exceeded, a source test shall be performed within 90 days after the exceeding 100 hours of operation. [District Rule 1081] Federally Enforceable Through Title V Permit
45. Source test conditions shall be representative of normal operations, but not less than 60% of the permitted glass production capacity. [District Rule 4354] Federally Enforceable Through Title V Permit
46. For source testing purposes, the arithmetic average of three 30-consecutive-minute test runs shall be used to determine compliance with NO_x, CO, VOC, SO_x, and NH₃ emission limits. [District Rules 2201 and 4354] Federally Enforceable Through Title V Permit
47. For source testing purposes, the arithmetic average of three 60-consecutive-minute test runs shall be used to determine compliance with PM₁₀ emission limits. [District Rule 4354] Federally Enforceable Through Title V Permit

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48. For source testing purposes, if two of the three runs individually demonstrate emissions above the applicable limit, the test cannot be used to demonstrate compliance for the furnace, even if the averaged emissions of all three test runs is less than the applicable limit. [District Rule 4354] Federally Enforceable Through Title V Permit
49. Source testing to measure oxides of nitrogen (as NO₂) (ppmv) shall be conducted using EPA Method 7E, or ARB Method 100, or oxides of nitrogen (as NO₂) (heat input basis) shall be conducted using EPA Method 19 and in accordance with Rule 1081, section 6.0 (12/16/93). Other test methods may be substituted as approved by the EPA, ARB and the APCO. [District Rules 1081 and 4354] Federally Enforceable Through Title V Permit
50. Source testing to measure Carbon Monoxide (CO) (ppmv) shall be conducted using EPA Method 10 or ARB Method 100, and in accordance with Rule 1081, section 6.0 (12/16/93). Other test methods may be substituted as approved by the EPA, ARB and the APCO. [District Rules 1081 and 4354] Federally Enforceable Through Title V Permit
51. Source testing to measure Volatile Organic Compounds (VOC) (ppmv) shall be conducted using EPA Method 25A, expressed in terms of carbon or ARB Method 100. EPA Method 18 or ARB Method 422 shall be used to determine emissions of exempt compounds, and in accordance with District Rule 1081, Section 6.0 (12/16/93). Other test methods may be substituted as approved by the EPA, ARB and the APCO. [District Rules 1081 and 4354] Federally Enforceable Through Title V Permit
52. Stack gas oxygen, carbon dioxide, excess air, and dry molecular weight shall be determined using EPA Method 3 or 3A or ARB Method 100. Other test methods may be substituted as approved by the EPA, ARB and the APCO. [District Rules 1081 and 4354] Federally Enforceable Through Title V Permit
53. Stack gas velocity and volumetric flow rate shall be determined using EPA Method 2. Other test methods may be substituted as approved by the EPA, ARB and the APCO. [District Rules 1081 and 4354] Federally Enforceable Through Title V Permit
54. Source testing to measure oxides of sulfur (as SO₂) shall be conducted using EPA Method 6C, EPA Method 8, or ARB Method 100, and in accordance with Rule 1081, section 6.0 (12/16/93). Other test methods may be substituted as approved by the EPA, ARB and the APCO. [District Rules 1081, 4354, and 4801] Federally Enforceable Through Title V Permit
55. Source testing to measure filterable PM₁₀ emissions shall be conducted using EPA Method 5, EPA Method 201, or EPA Method 201A for filterable PM₁₀ emissions. The operator choosing EPA Method 5 shall count all PM collected as PM₁₀. The test shall be conducted in accordance with Rule 1081, section 6.0 (12/16/93). Other test methods may be substituted as approved by the EPA, ARB and the APCO. [District Rules 1081 and 4354, and 40 CFR 52.21] Federally Enforceable Through Title V Permit
56. Source testing to measure condensable PM₁₀ emissions shall be conducted using EPA 202 in accordance with the procedure listed in sections 6.5.9.2.1 and 6.5.9.2.2, and 6.5.9.2.3 of District Rule 4354, and in accordance with Rule 1081, section 6.0 (12/16/93). Other test methods may be substituted as approved by the EPA, ARB and the APCO. [District Rules 1081 and 4354] Federally Enforceable Through Title V Permit
57. Any source testing result, CEMS, or alternate monitoring method averaged value exceeding the applicable emission limits of Section 5.1, Section 5.2, Section 5.3, or Section 5.4 shall constitute a violation of the Rule 4354. [District Rule 4354] Federally Enforceable Through Title V Permit
58. NH₃ emissions, for source test purposes, shall be determined using BAAQMD method ST-1B. [District Rule 2201] Federally Enforceable Through Title V Permit
59. The exhaust stack shall be equipped with a continuous emissions monitoring system (CEMS) for NO_x, O₂ and stack gas flow rate, and a continuous opacity monitoring system (COMS). Both the CEMS and COMS shall meet the requirements of 40 CFR parts 60 and 75 and shall be capable of monitoring emissions during startups and shutdowns as well as during normal operating conditions. [District Rule 1080 and 40 CFR 52.21] Federally Enforceable Through Title V Permit
60. The facility shall install and maintain equipment, facilities, and systems compatible with the District's CEM data polling software system and shall make CEM data available to the District's automated polling system on a daily basis. [District Rule 1080] Federally Enforceable Through Title V Permit

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CONDITIONS CONTINUE ON NEXT PAGE

61. Upon notice by the District that the facility's CEM system is not providing polling data, the facility may continue to operate without providing automated data for a maximum of 30 days per calendar year provided the CEM data is sent to the District by a District-approved alternative method. [District Rule 1080] Federally Enforceable Through Title V Permit
62. {2251} The owner or operator shall, upon written notice from the APCO, provide a summary of the data obtained from the CEM systems. This summary of data shall be in the form and the manner prescribed by the APCO. [District Rule 1080, 7.1] Federally Enforceable Through Title V Permit
63. Results of the CEM system shall be averaged over the appropriate averaging period, using consecutive 15-minute sampling periods in accordance with all applicable requirements of CFR 60.13, or by other methods deemed equivalent by mutual agreement with the District, California Air Resources Board, and EPA. [District Rule 1080 and 40 CFR 60.13] Federally Enforceable Through Title V Permit
64. Records shall be maintained and shall include: the occurrence and duration of any start-up, shutdown or malfunction, performance testing, evaluations, calibrations, checks, adjustments, any periods during which a continuous monitoring system or monitoring device is inoperative, maintenance of any CEMS that have been installed pursuant to District Rule 1080, and emission measurements. [District Rule 1080] Federally Enforceable Through Title V Permit
65. Cylinder gas audits (CGAs) of continuous emission monitors shall be conducted quarterly, except during quarters in which relative accuracy and total accuracy testing is performed, in accordance with EPA guidelines. The District shall be notified prior to completion of the audits. Audit reports shall be submitted along with quarterly compliance reports to the District. [District Rule 1080] Federally Enforceable Through Title V Permit
66. The owner/operator shall perform a relative accuracy test audit (RATA) as specified by 40 CFR Part 60, Appendix F (CGAs and RATAs) and if applicable 40 CFR Part 75, Appendix B (linearity and RATAs) at least once every four calendar quarters and annually within 30 days of the anniversary date of the initial test. The permittee shall comply with the applicable requirements for quality assurance testing and maintenance of the continuous emission monitor equipment in accordance with the procedures and guidance specified in 40 CFR Part 60, Appendix F. [District Rule 1080] Federally Enforceable Through Title V Permit
67. The operator shall report any violation of NO_x emission standards indicated by the NO_x CEMS or any violation of opacity standards as indicated by the COMS to the APCO within 96 hours. [District Rule 1080] Federally Enforceable Through Title V Permit
68. The operator shall notify the APCO no later than eight hours after the detection of a breakdown of the CEMS or COMS. The operator shall inform the APCO of the intent to shut down the CEMS or COMS at least 24 hours prior to the event. [District Rule 1080] Federally Enforceable Through Title V Permit
69. The permittee shall submit a written report including copies of any Equipment Breakdown reports and/or pertinent variance decisions to the APCO for each calendar quarter, within 30 days of the end of the quarter, including: time intervals, data and magnitude of excess emissions, nature and cause of excess emissions (if known), corrective actions taken and preventive measures adopted; averaging period used for data reporting shall correspond to the averaging period for each respective emission standard; applicable time and date of each period during which the CEM was inoperative (except for zero and span checks) and the nature of system repairs and adjustments; and a negative declaration when no excess emissions occurred. [District Rule 1080 and 40 CFR 52.21] Federally Enforceable Through Title V Permit
70. The permittee shall establish minimum excess oxygen (%) in the flue gas during the initial source test after installing the emissions control system while demonstrating compliance with CO and VOC emission limits of this permit. The established limit shall be listed on the Permit to Operate. [District Rules 2201 and 4354] Federally Enforceable Through Title V Permit
71. Excess oxygen (%) in the flue gas shall be measured continuously. The measured excess oxygen (%) shall be averaged over 30 -consecutive-minute to demonstrate compliance with the established minimum excess oxygen (%). The averaged reading shall be recorded each day at the frequency specified in this condition. [District Rules 2201 and 4354] Federally Enforceable Through Title V Permit
72. The minimum injection rate of hydrated lime into the dry scrubber shall be established during the initial source test while demonstrating compliance with SO_x emission limits of this permit. The established reading shall be listed on the Permit to Operate. [District Rules 2201 and 4354] Federally Enforceable Through Title V Permit

CONDITIONS CONTINUE ON NEXT PAGE

73. The hydrated lime injection rate shall be measured and recorded every 15-minutes by a loss-in-weight feeder consisting of a screw feeder on load cells. The recorded injection rate data shall be averaged over a 60-consecutive-minute block to demonstrate compliance with the established minimum injection rate of hydrated lime. The averaged readings shall be recorded each day the scrubber operates. Upon detecting any excursion, the permittee shall investigate the excursion and take corrective action to minimize excessive emissions and prevent recurrence of the excursion as expeditiously as practicable. [District Rules 2201 and 4354, and 40 CFR Part 64] Federally Enforceable Through Title V Permit
74. The temperature range of the laden stream entering the dry scrubber shall be established during the initial source test while demonstrating compliance with SO_x emission limits. The established temperature range shall be listed on the Permit to Operate. [District Rules 2201 and 4354] Federally Enforceable Through Title V Permit
75. The temperature of the laden stream entering the scrubber shall be measured and recorded every 15-minutes using a thermocouple. The recorded temperature data shall be averaged over a 60-consecutive-minute block to demonstrate compliance with the established temperature range. The averaged readings shall be recorded each day the scrubber operates. Upon detecting any excursion, the permittee shall investigate the excursion and take corrective action to minimize excessive emissions and prevent recurrence of the excursion as expeditiously as practicable. [District Rules 2201 and 4354, and, 40 CFR Part 64] Federally Enforceable Through Title V Permit
76. Voltage and current across each field of the ESP shall be established during the initial source test while demonstrating compliance with PM₁₀ emission limits of this permit. The established readings shall be listed on the Permit to Operate. [District Rules 2201 and 4354] Federally Enforceable Through Title V Permit
77. Voltage and current across each field of the ESP shall be measured and recorded every 15-minutes. The recorded voltage and current data shall be averaged over a 60-consecutive-minute block to demonstrate compliance with the established voltage and current readings across each field of the ESP. The averaged readings shall be recorded each day the ESP operates. Upon detecting any excursion, the permittee shall investigate the excursion and take corrective action to minimize excessive emissions and prevent recurrence of the excursion as expeditiously as practicable. [District Rule 2201 and 4354, and 40 CFR Part 64] Federally Enforceable Through Title V Permit
78. NH₃ monitoring shall be conducted at least once a month (in which source test is not performed) using Draeger tubes or a District approved equivalent method. The measured concentration shall be corrected to 12% O₂ to demonstrate compliance with the permitted emissions limit. [District Rule 2201] Federally Enforceable Through Title V Permit
79. The exhaust from the glass melting furnace shall be vented through an operational SO_x scrubber, electrostatic precipitator, and selective catalytic reduction system except during periods of furnace startup (when technologically infeasible), furnace idle (when technologically infeasible), furnace shutdown (when technologically infeasible) and during add-on control system maintenance. Scheduled maintenance of the add-on control systems shall be accomplished during periods of furnace idling whenever possible. [District Rule 4354] Federally Enforceable Through Title V Permit
80. The NO_x, SO_x and PM₁₀ emission limits of this permit shall not apply during routine maintenance of the respective add-on control systems, provided the routine maintenance in each calendar year does not exceed 144 hours total for all add-on controls and routine maintenance is conducted in a manner consistent with good air pollution control practices for minimizing emissions. [District Rule 4354] Federally Enforceable Through Title V Permit
81. Permittee shall maintain records of the following: 1) Source tests and source test results, 2) the acceptable range for each approved key system operating parameter, as established during source tests, 3) The operating values of the key system operating parameters at the approved recording frequency, 4) any maintenance and repair, and 5) any malfunctions. [District Rule 4354] Federally Enforceable Through Title V Permit
82. The permittee shall keep the following daily records: 1) The NO_x emission rate in lb/ton of glass pulled (block 24-hr average), 2) The NO_x emission rate in lb/ton of glass pulled (rolling 30-day average), and 3) The quantity of glass pulled from the furnace (tons/day). [District Rules 2201 and 4354] Federally Enforceable Through Title V Permit
83. The permittee shall keep records of the rolling 12-month quantity of glass pulled. These records shall be updated on at least a monthly basis. [District Rule 2201] Federally Enforceable Through Title V Permit
84. Permittee shall keep a daily record of the VOC emissions from the glass furnace. [District Rule 2201]

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CONDITIONS CONTINUE ON NEXT PAGE

85. Daily records of natural gas or LPG usage shall be maintained. [District Rule 2520 §9.3.2] Federally Enforceable Through Title V Permit
86. The permittee shall keep a record of the cumulative annual hours of operation of the glass furnace on LPG fuel. [District Rule 2201]
87. Daily records of the furnace fill rate shall be maintained. [District Rule 2520] Federally Enforceable Through Title V Permit
88. Monthly records of salt cake and gypsum content per 1,000 lb of sand in each batch shall be maintained. [District Rule 2520] Federally Enforceable Through Title V Permit
89. The permittee shall comply with the compliance assurance monitoring operation and maintenance requirements of 40 CFR Part 64.7 for the ESP and the dry scrubber. [40 CFR Part 64] Federally Enforceable Through Title V Permit
90. The permittee shall comply with the recordkeeping and reporting requirements of 40 CFR Part 64.9 for the ESP and the dry scrubber. [40 CFR Part 64] Federally Enforceable Through Title V Permit
91. If the District or EPA determines per 40 CFR 64.7(d)(2) that a Quality Improvement Plan is required, the permittee shall develop and implement the Quality Improvement Plan in accordance with 40 CFR Part 64.8. [40 CFR Part 64] Federally Enforceable Through Title V Permit
92. The operator shall retain all records required by this permit for a period of at least five years; make the records available on site during normal business hours to the APCO, ARB, or EPA; and submit the records to the APCO, ARB, or EPA upon request. [District Rules 1070, 2201, and 4354] Federally Enforceable Through Title V Permit
93. Compliance with the conditions in the permit requirements for this unit shall be deemed compliance with District Rule 4201, San Joaquin County Rule 404, District Rule 4202 and San Joaquin County Rule 405. A permit shield is granted from these requirements. [District Rule 2520] Federally Enforceable Through Title V Permit
94. Compliance with the conditions in the permit requirements for this unit shall be deemed compliance with District Rule 4801 and San Joaquin County Rule 407. A permit shield is granted from these requirements. [District Rule 2520] Federally Enforceable Through Title V Permit
95. The requirements of District Rule 4301 and San Joaquin County Rule 408 were determined to not apply to this unit because the unit does not utilize indirect heat transfer. A permit shield is granted from these requirements. [District Rule 2520] Federally Enforceable Through Title V Permit
96. The requirements of 40 CFR 60, Subpart CC were determined to not apply to this unit because the unit was constructed prior to the effective date in the regulation and not been modified (according to the definition of "modified" in the regulation). A permit shield is granted from these requirements. [District Rule 2520] Federally Enforceable Through Title V Permit
97. The requirements of 40 CFR 61, Subpart N were determined to not apply to this unit because the unit does not use commercial arsenic. A permit shield is granted from these requirements. [District Rule 2520] Federally Enforceable Through Title V Permit

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APPENDIX II
Current Permit to Operate

San Joaquin Valley Air Pollution Control District

PERMIT UNIT: N-477-10-8

EXPIRATION DATE: 08/31/2016

EQUIPMENT DESCRIPTION:

200 MMBTU/HR GLASS MELTING FURNACE WITH ECLIPSE COMBUSTION MODEL WRSP10.XX LOW NOX BURNERS AND 3R NOX EMISSIONS CONTROL SYSTEM

PERMIT UNIT REQUIREMENTS

1. The particulate matter emissions shall not exceed 0.1 grains/dscf in concentration. [District Rule 4201] Federally Enforceable Through Title V Permit
2. No air contaminants shall be discharged into the atmosphere for a period or periods aggregating more than 3 minutes in any one hour which is as dark or darker than Ringelmann #1 or equivalent to 20% opacity and greater, unless specifically exempted by District Rule 4101, by using EPA method 9. If the equipment or operation is subject to a more stringent visible emission standard as prescribed in a permit condition, the more stringent visible emission limit shall supersede this condition. [District Rule 4101, and San Joaquin County Rule 401] Federally Enforceable Through Title V Permit
3. The Pilkington 3R NOx control system shall be operated with a minimum control efficiency of 31.5% (on a 24-hour average) at all times, except for a period of time necessary to establish a baseline NOx emission rate for the purpose of determining the NOx control equipment efficiency. Uncontrolled NOx emissions may be generated up to 16 hours per month (maximum of 4 hours per 24 hour period) when establishing the baseline NOx emissions rate. [District NSR Rule] Federally Enforceable Through Title V Permit
4. The furnace fill rate shall not exceed 750 tons per day. [District NSR Rule] Federally Enforceable Through Title V Permit
5. When firing on LPG, the daily fuel usage rate shall not exceed 64,066 gallons. [District NSR Rule] Federally Enforceable Through Title V Permit
6. When firing on natural gas, the daily fuel usage rate shall not exceed 5,942,875 cubic feet. [District NSR Rule] Federally Enforceable Through Title V Permit
7. The glass pull rate shall not exceed 630 tons per day. [District Rules 4354, 6.1] Federally Enforceable Through Title V Permit
8. The facility shall not use commercial arsenic as a raw material in the production process. [40 CFR 61 Subpart N] Federally Enforceable Through Title V Permit
9. All equipment, facilities, or systems installed or used to achieve compliance with the terms and conditions of the Federal Prevention of Significant Deterioration permit shall at all times be maintained in good working order and be operated as efficiently as possible to minimize air pollutant emissions. [40 CFR 52.21] Federally Enforceable Through Title V Permit
10. The exhaust stack shall be equipped with a continuous emissions monitoring system (CEMS) for NOx, O2 and stack gas flow rate, and a continuous opacity monitoring system (COMS). Both the CEMS and COMS shall meet the requirements of 40 CFR parts 60 and 75 and shall be capable of monitoring emissions during startups and shutdowns as well as during normal operating conditions. [District Rule 1080 and 40 CFR 52.21] Federally Enforceable Through Title V Permit

PERMIT UNIT REQUIREMENTS CONTINUE ON NEXT PAGE

These terms and conditions are part of the Facility-wide Permit to Operate.

11. The operator shall report any violation of NO_x emission standards indicated by the NO_x CEMS or any violation of opacity standards as indicated by the COMS to the APCO within 96 hours. [District Rule 1080] Federally Enforceable Through Title V Permit
12. The operator shall notify the APCO no later than eight hours after the detection of a breakdown of the CEMS or COMS. The operator shall inform the APCO of the intent to shut down the CEMS or COMS at least 24 hours prior to the event. [District Rule 1080] Federally Enforceable Through Title V Permit
13. The facility shall install and maintain equipment, facilities, and systems compatible with the District's CEM data polling software system and shall make CEM data available to the District's automated polling system on a daily basis. [District Rule 1080] Federally Enforceable Through Title V Permit
14. Upon notice by the District that the facility's CEM system is not providing polling data, the facility may continue to operate without providing automated data for a maximum of 30 days per calendar year provided the CEM data is sent to the District by a District-approved alternative method. [District Rule 1080] Federally Enforceable Through Title V Permit
15. The exhaust stack shall be equipped with permanent provisions to allow collection of stack gas samples consistent with EPA test methods and shall be equipped with safe permanent provisions to sample stack gases with a portable NO_x, CO, and O₂ analyzer during District inspections. The sampling ports shall be located in accordance with the CARB regulation titled California Air Resources Board Air Monitoring Quality Assurance Volume VI, Standard Operating Procedures for Stationary Source Emission Monitoring and Testing. [District Rule 1081] Federally Enforceable Through Title V Permit
16. Results of continuous emissions monitoring shall be reduced according to the procedure established in 40 CFR, Part 51, Appendix P, paragraphs 5.0 through 5.3.3, or by other methods deemed equivalent by mutual agreement with the District, the ARB, and the EPA. [District Rule 1080] Federally Enforceable Through Title V Permit
17. Cylinder gas audits (GGAs) of continuous emission monitors shall be conducted quarterly, except during quarters in which relative accuracy and total accuracy testing is performed, in accordance with EPA guidelines. The District shall be notified prior to completion of the audits. Audit reports shall be submitted along with quarterly compliance reports to the District. [District Rule 1080] Federally Enforceable Through Title V Permit
18. The owner/operator shall perform a relative accuracy test audit (RATA) as specified by 40 CFR Part 60, Appendix F (CGAs and RATAs) and if applicable 40 CFR Part 75, Appendix B (linearity and RATAs) at least once every four calendar quarters and annually within a 30 days of the anniversary date of the initial test. The permittee shall comply with the applicable requirements for quality assurance testing and maintenance of the continuous emission monitor equipment in accordance with the procedures and guidance specified in 40 CFR Part 60, Appendix F. [District Rule 1080] Federally Enforceable Through Title V Permit
19. NO_x emissions (referenced as NO₂) shall not exceed 241.5 pounds per hour on a block 24-hour average. [District Rules 2201 and 4354]
20. A block 24-hour average is defined as the arithmetic average of hourly NO_x emission rates of a furnace as measured over 24 one-hour periods, daily, from 12:00 AM to 11:59 PM, excluding periods of system calibration. [District Rule 4354]
21. NO_x emissions (referenced as NO₂) shall not exceed 4,410 pounds per day on a rolling 30-day average. [District Rules 2201 and 4354]
22. A rolling 30-day average is defined as the arithmetic average of the daily emission rates of a furnace over a contiguous 30-day period, excluding periods of system calibration. [District Rule 4354]
23. NO_x emissions (referenced as NO₂) shall not exceed 1,533,000 pounds during any one calendar year. [District Rule 2201]
24. CO emissions shall not exceed 567.0 pounds during any one day. [District Rule 2201]
25. VOC emissions shall not exceed 21.0 pounds during any one day. [District Rule 2201]

PERMIT UNIT REQUIREMENTS CONTINUE ON NEXT PAGE

These terms and conditions are part of the Facility-wide Permit to Operate.

26. Particulate Matter emissions shall not exceed 30.0 pounds per hour. [District Rule 2201 and 40 CFR 52.21] Federally Enforceable Through Title V Permit
27. SOx emissions (referenced as SO₂) shall not exceed 88.0 pounds per hour. [District NSR Rule and 40 CFR 52.21] Federally Enforceable Through Title V Permit
28. Saltcake or Gypsum may be used as a batch constituent as a source of sulfate. [District NSR Rule] Federally Enforceable Through Title V Permit
29. When using gypsum, the emissions of oxides of sulfur (referenced as SO₂) shall not exceed 30 pounds per hour when the gypsum usage is less than or equal to 10.7 pounds per 1,000 pounds of sand in the batch. [District NSR Rule and 40 CFR 52.21] Federally Enforceable Through Title V Permit
30. If gypsum usage exceeds 10.7 lb/1000 lb of sand in the batch, the maximum allowable emissions shall be determined by following equation: $S_{MAX} = (6.3 * GYPRATE) - 39.5$; where S_{MAX} = allowable SOx (referenced as SO₂) and $GYPRATE$ = gypsum usage (lb/1000 lb sand). [District NSR Rule and 40 CFR 52.21] Federally Enforceable Through Title V Permit
31. When using saltcake, the emissions of oxides of sulfur (referenced as SO₂) shall not exceed 30 pounds per hour when the saltcake usage is less than or equal to 8 pounds per 1000 pounds of sand in the batch. [District NSR Rule] Federally Enforceable Through Title V Permit
32. If saltcake usage exceeds 8 lb/1000 lb of sand in the batch, the maximum allowable emissions shall be determined by the following equation: $S_{MAX} = (8.5 * SLTRATE) - 39.5$; where S_{MAX} = allowable SOx (referenced as SO₂) and $SLTRATE$ = saltcake usage (lb/1000 lb sand). [District NSR Rule] Federally Enforceable Through Title V Permit
33. The maximum allowable emission rate for Particulate Matter shall be determined by the following equations: $E = 3.59 * P^{0.62}$ for $P < 30$ tons/hour or $17.31 * P^{0.16}$ for $P > 30$ tons/hour. [District Rule 4202] Federally Enforceable Through Title V Permit
34. The concentration of sulfur compounds in the exhaust from this unit shall not exceed 0.2% by volume as measured on a dry basis over a 15 minute period. [San Joaquin County Rule 407 and District Rule 4801] Federally Enforceable Through Title V Permit
35. Source testing to measure NO_x, CO, VOC, PM, and SO₂ emissions shall be conducted at least once every calendar year under all applicable permitted operating scenarios (low gypsum, high gypsum, low salt cake, high salt cake) and during periods of high furnace fill rate. [District Rules 1081, 2520 §9.3.2 and 4354]
36. Source test conditions shall be representative of normal operations, but not less than 60% of either the maximum pull rate or furnace's maximum fuel use capacity. [District Rule 4354]
37. Source testing prior to or after the anniversary of the previous test is allowed as long as the proposed source test date falls within 6 to 18 month period from the anniversary date of the previous source test. [District Rule 4354]
38. The results of each source test shall be submitted to the District within 60 days thereafter. [District Rule 1081] Federally Enforceable Through Title V Permit
39. For NO_x, CO and VOC source testing, the arithmetic average of three 30-consecutive-minute test runs shall apply. If two of the three runs individually demonstrate emissions above the applicable limit, the test cannot be used to demonstrate compliance for the furnace, even if the averaged emissions of all three test runs is less than the applicable limit. [District Rule 4354]
40. Source testing to measure NO_x emissions shall be conducted using EPA Method 7E, EPA Method 19, or CARB Method 100. Other test methods may be substituted as approved by the District and EPA. [District Rules 1081 and 4354 §6.5.1] Federally Enforceable Through Title V Permit
41. Source testing to measure CO emissions shall be conducted using EPA Method 10, or CARB Method 100. Other test method may be substituted as approved by the District and EPA. [District Rule 4354]
42. Source testing to measure VOC emissions shall be conducted using EPA Method 25 A, EPA Method 18 or ARB Method 422. Other test method may be substituted as approved by the District and EPA. [District Rule 4354]

PERMIT UNIT REQUIREMENTS CONTINUE ON NEXT PAGE

These terms and conditions are part of the Facility-wide Permit to Operate.

43. Source testing to measure Particulate Matter and SOx emissions shall be conducted using CARB combined Methods 5/202 and 6C. Other test methods may be substituted as approved by the District and EPA. [District Rule 1081 and 40 CFR 52.21] Federally Enforceable Through Title V Permit
44. Stack gas oxygen, excess air, and dry molecular weight shall be determined using EPA Method 3 or 3A, or CARB Method 100. Other test methods may be substituted as approved by the District and EPA. [District Rules 1081 and 4354 §6.5.1] Federally Enforceable Through Title V Permit
45. Stack gas velocity and volumetric flow rate shall be determined using EPA Method 2. Other test methods may be substituted as approved by the District and EPA. [District Rules 1081 and 4354 §6.5.1] Federally Enforceable Through Title V Permit
46. A daily log showing the date and duration of periods when the NOx control equipment is not operated shall be kept on site at all times. [District NSR Rule] Federally Enforceable Through Title V Permit
47. Records shall be maintained and shall include: the occurrence and duration of any start-up, shutdown or malfunction, performance testing, evaluations, calibrations, checks, adjustments, any periods during which a continuous monitoring system or monitoring device is inoperative, maintenance of any CEMS that have been installed pursuant to District Rule 1080, and emission measurements. [District Rule 1080] Federally Enforceable Through Title V Permit
48. The operator shall maintain an operating log that includes on a daily basis; the hours of operation of the furnace, type and quantity of fuel used in the furnace, quantity of glass pulled, and NOx emission rates in lb/ton of glass pulled. This information shall be on-site during normal business hours and submitted to the APCO, ARB, or EPA upon request. [District Rule 4354]
49. The permittee shall maintain records of the following: a.) type of glass produced; b.) NOx emissions, in pounds per hour, on a block 24-hour average; c.) SOx and PM emissions, in pounds per hour, based on a daily average; d.) CO and VOC emissions, in pounds per day; e.) NOx emissions, in pounds per day, on a rolling 30-day average; f.) cumulative NOx emissions, in pounds per calendar year, updated at least monthly. [District Rules 2201 and 4354]
50. When applicable, daily records of natural gas or LPG usage shall be maintained. [District Rule 2520 §9.3.2] Federally Enforceable Through Title V Permit
51. Daily records of furnace fill rate shall be maintained. [District Rule 2520 §9.3.2] Federally Enforceable Through Title V Permit
52. Monthly records of salt cake and gypsum content per 1,000 lb of sand in each batch shall be maintained. [District Rule 2520 §9.3.2] Federally Enforceable Through Title V Permit
53. The permittee shall submit a written report including copies of any Equipment Breakdown reports and/or pertinent variance decisions to the APCO for each calendar quarter, within 30 days of the end of the quarter, including: time intervals, data and magnitude of excess emissions, nature and cause of excess emissions (if known), corrective actions taken and preventive measures adopted; averaging period used for data reporting shall correspond to the averaging period for each respective emission standard; applicable time and date of each period during which the CEM was inoperative (except for zero and span checks) and the nature of system repairs and adjustments; and a negative declaration when no excess emissions occurred. [District Rule 1080 and 40 CFR 52.21] Federally Enforceable Through Title V Permit
54. Compliance with the conditions in the permit requirements for this unit shall be deemed compliance with District Rule 4201, San Joaquin County Rule 404, District Rule 4202 and San Joaquin County Rule 405. A permit shield is granted from these requirements. [District Rule 2520 §13.2] Federally Enforceable Through Title V Permit
55. Compliance with the conditions in the permit requirements for this unit shall be deemed compliance with District Rule 4354. A permit shield is granted from these requirements. [District Rule 2520 §13.2] Federally Enforceable Through Title V Permit
56. Compliance with the conditions in the permit requirements for this unit shall be deemed compliance with District Rule 4801 and San Joaquin County Rule 407. A permit shield is granted from these requirements. [District Rule 2520 §13.2] Federally Enforceable Through Title V Permit

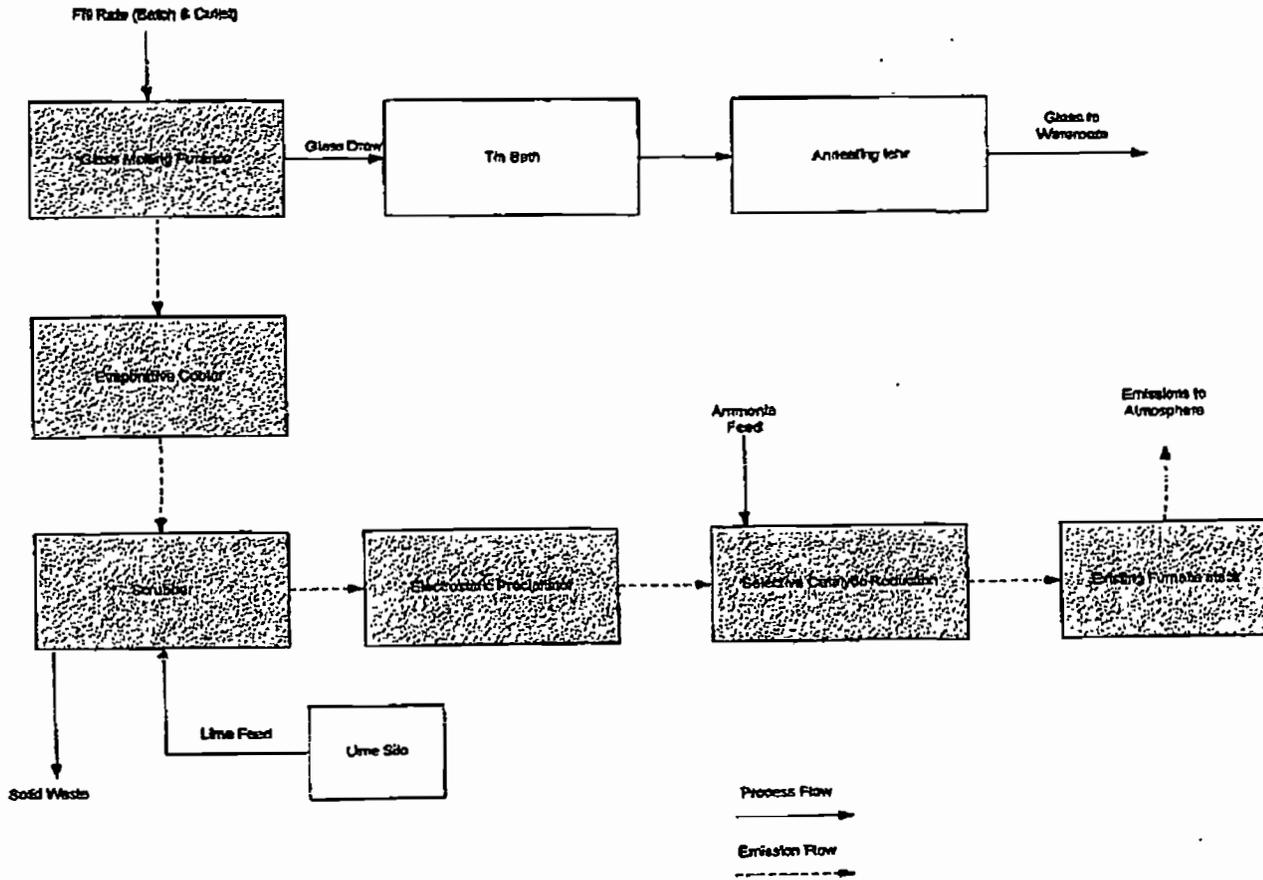
PERMIT UNIT REQUIREMENTS CONTINUE ON NEXT PAGE

These terms and conditions are part of the Facility-wide Permit to Operate.

57. The requirements of District Rule 4301 and San Joaquin County Rule 408 were determined to not apply to this unit because the unit does not utilize indirect heat transfer. A permit shield is granted from these requirements. [District Rule 2520 §13.2] Federally Enforceable Through Title V Permit
58. The requirements of 40 CFR 60, Subpart CC were determined to not apply to this unit because the unit was constructed prior to the effective date in the regulation and not been modified (according to the definition of "modified" in the regulation). A permit shield is granted from these requirements. [District Rule 2520 §13.2] Federally Enforceable Through Title V Permit
59. The requirements of 40 CFR 61, Subpart N were determined to not apply to this unit because the unit does not use commercial arsenic. A permit shield is granted from these requirements. [District Rule 2520 §13.2] Federally Enforceable Through Title V Permit
60. Permittee shall submit an Authority to Construct application for compliance with early enhanced option NOx limits by June 1, 2012, and be in full compliance with enhanced option NOx limits by January 1, 2014. [District Rule 4354, 7.2.1] Federally Enforceable Through Title V Permit

These terms and conditions are part of the Facility-wide Permit to Operate.

APPENDIX III
Process Diagram



Process Flow Diagram

Pikington NA, Inc.
 500 East Louise Avenue
 Lathrop, CA 95330-0128

APPENDIX IV
SSPE1 Calculations

SSPE1 Calculations

N-477-1-5: RIGHT AND LEFT SIDE DOGHOUSE VENTILATION SYSTEM VENTED TO A P&F RECOV-AIRE MODEL JT-10-560-7,880 BAGHOUSE AS THE PRIMARY DUST COLLECTOR OR VENTED TO TWO KIRK & BLOM CYCLONES, IN PARALLEL, AS A BACKUP SYSTEM FOR DUST CONTROL

The following emission factor for this unit was obtained from the current PTO.

PM₁₀: 0.22 lb/ton of material introduced to the furnace

The PTO limits the furnace fill rate to 750 tons/day. Thus,

PE = 750 tons/day x 365 days/year x 0.22 lb-PM₁₀/ton
PE = 60,225 lb-PM₁₀/year

N-477-5-4: RAW MATERIAL RECEIVING STATION CONSISTING OF AN UNLOADING HOPPER, AN UNDERGROUND CONVEYOR, AND A BELOW GROUND ELEVATOR UNDER AN ENCLOSURE SERVED BY A BAGHOUSE

The following emission factor for this unit was obtained from the current PTO.

PM₁₀: 0.013 lb/ton of materials unloaded

The PTO limits the material unloading and handling rate to 7,830 tons/day. Thus,

PE = 7,830 tons/day x 365 days/year x 0.013 lb-PM₁₀/ton
PE = 37,153 lb-PM₁₀/year

N-477-6-5: CULLET CONVEYING SYSTEM CONSISTING OF A CULLET INPUT HOPPER AND TWO COVERED CONVEYORS WITH THE TRANSFER POINTS VENTED TO A DLM3/8-15 BAGHOUSE, AND ONE COVERED CONVEYOR AND FURNACE INPUT HOPPER BOTH VENTED TO A DU-45R 12 BAGHOUSE

The following emission factor for this unit was obtained from the current PTO.

PM₁₀: 0.011 lb/ton of cullet throughput

The PTO limits the cullet throughput to 750 tons/day. Thus,

PE = 750 tons/day x 365 days/year x 0.011 lb-PM₁₀/ton
PE = 3,011 lb-PM₁₀/year

N-477-7-6: CULLET CONVEYING SYSTEM: ENCLOSED GLASS GRINDER AND CONVEYOR ALL VENTED TO THE DLM 3/8-15 BAGHOUSE, A COVERED CONVEYOR, A CULLET DROP CHUTE VENTED TO THE DLM 3/8-15 BAGHOUSE, A CONCRETE CULLET RECEIVING BUNKER, TEN STORAGE BUNKERS, AND STORAGE PILES

The following emission factor for this unit was obtained from the current PTO.

PM₁₀: 0.053 lb/ton of cullet throughput

The PTO limits the cullet throughput to 7,830 tons/day. Thus,

PE = 750 tons/day x 365 days/year x 0.053 lb-PM₁₀/ton
PE = 14,509 lb-PM₁₀/year

N-477-19-3: 385 HP DIESEL-FIRED EMERGENCY IC ENGINE POWERING AN ELECTRICAL GENERATOR

The following emission factors will be used to determine the emission rates for this engine:

Pollutant	Emission Factor	Source
NO _x	0.031 lb/bhp-hr	AP-42 Table 3.3-1
SO _x	0.0051 g/bhp-hr	GEAR 11D
PM ₁₀	0.0022 lb/bhp-hr	AP-42 Table 3.3-1
CO	0.00668 lb/bhp-hr	AP-42 Table 3.3-1
VOC	0.00247 lb/bhp-hr	AP-42 Table 3.3-1

Using the 385 bhp rating of the engine and the 20 hr/year operating limitation listed on the PTO, the annual emissions are:

PE_{NO_x} = 385 bhp x 20 hr/year x 0.031 lb/bhp-hr
PE_{NO_x} = 239 lb/year

PE_{SO_x} = 385 bhp x 20 hr/year x 0.0051 g/bhp-hr x 1 lb/453.6 g
PE_{SO_x} = 0 lb/year

PE_{PM₁₀} = 385 bhp x 20 hr/year x 0.0022 lb/bhp-hr
PE_{PM₁₀} = 17 lb/year

PE_{CO} = 385 bhp x 20 hr/year x 0.00668 lb/bhp-hr
PE_{CO} = 51 lb/year

PE_{VOC} = 385 bhp x 20 hr/year x 0.00247 lb/bhp-hr
PE_{VOC} = 19 lb/year

N-477-20-3: 1660 HP DIESEL-FIRED EMERGENCY IC ENGINE POWERING AN ELECTRICAL GENERATOR

The following emission factors will be used to determine the emission rates for this engine:

Pollutant	Emission Factor	Source
NOx	0.031 lb/bhp-hr	AP-42 Table 3.3-1
SOx	0.0051 g/bhp-hr	GEAR 11D
PM ₁₀	0.0022 lb/bhp-hr	AP-42 Table 3.3-1
CO	0.00668 lb/bhp-hr	AP-42 Table 3.3-1
VOC	0.00247 lb/bhp-hr	AP-42 Table 3.3-1

Using the 1,660 bhp rating of the engine and the 20 hr/year operating limitation listed on the PTO, the annual emissions are:

$$PE_{NOx} = 1,660 \text{ bhp} \times 20 \text{ hr/year} \times 0.031 \text{ lb/bhp-hr}$$
$$PE_{NOx} = 1,029 \text{ lb/year}$$

$$PE_{SOx} = 1,660 \text{ bhp} \times 20 \text{ hr/year} \times 0.0051 \text{ g/bhp-hr} \times 1 \text{ lb}/453.6 \text{ g}$$
$$PE_{SOx} = 0 \text{ lb/year}$$

$$PE_{PM10} = 1,660 \text{ bhp} \times 20 \text{ hr/year} \times 0.0022 \text{ lb/bhp-hr}$$
$$PE_{PM10} = 73 \text{ lb/year}$$

$$PE_{CO} = 1,660 \text{ bhp} \times 20 \text{ hr/year} \times 0.00668 \text{ lb/bhp-hr}$$
$$PE_{CO} = 222 \text{ lb/year}$$

$$PE_{VOC} = 1,660 \text{ bhp} \times 20 \text{ hr/year} \times 0.00247 \text{ lb/bhp-hr}$$
$$PE_{VOC} = 82 \text{ lb/year}$$

N-477-34-5: SHUTTLE CONVEYING SYSTEM ATOP THE BULK MATERIAL SILOS (3) SERVING THE SILOS AND BEING SERVED BY THE BULK MATERIAL RECEIVING ELEVATOR VENTED TO A P&F JI-4-104-600 PULSE JET BAGHOUSE

The following emission factor for this unit was obtained from the current PTO.

$$PM_{10}: 0.00006 \text{ lb/ton of material processed}$$

The PTO limits the material throughput to 7,830 tons/day. Thus,

$$PE = 7,830 \text{ tons/day} \times 365 \text{ days/year} \times 0.00006 \text{ lb-PM}_{10}/\text{ton}$$
$$PE = 171 \text{ lb-PM}_{10}/\text{year}$$

N-477-39-3: GLASS ANNEALING LEHR SERVING THE GLASS MELTING FURNACE

The daily emission rates for this unit were obtained from District Project N-950057. These daily emission rates will be multiplied by 365 days/year to obtain the annual potential to emit.

$$PE_{NOx} = 61.2 \text{ lb/day} \times 365 \text{ days/year}$$
$$PE_{NOx} = 22,338 \text{ lb/year}$$

$$PE_{SOx} = 100.0 \text{ lb/day} \times 365 \text{ days/year}$$
$$PE_{SOx} = 36,500 \text{ lb/year}$$

$$PE_{PM10} = 6.0 \text{ lb/day} \times 365 \text{ days/year}$$
$$PE_{PM10} = 2,190 \text{ lb/year}$$

$$PE_{CO} = 15.3 \text{ lb/day} \times 365 \text{ days/year}$$
$$PE_{CO} = 5,585 \text{ lb/year}$$

$$PE_{VOC} = 1.2 \text{ lb/day} \times 365 \text{ days/year}$$
$$PE_{VOC} = 438 \text{ lb/year}$$

N-477-43-4: 132 HP NATURAL GAS-FIRED EMERGENCY IC ENGINE WITH A JOHNSON MATTHEY 3 WAY CATALYST (MODEL DURA-NOX 150) POWERING A 98KW KOHLER MODEL 80RZ ELECTRICAL GENERATOR

The following emission factors will be used to determine the emission rates for this engine:

Pollutant	Emission Factor	Source
NOx	1.5 g/bhp-hr	Project N-950407
SOx	0.6 g/bhp-hr	Project N-950407
PM ₁₀	10 lb/MMscf	Project N-950407
CO	2.0 g/bhp-hr	Project N-950407
VOC	1.5 g/bhp-hr	Project N-950407

Using the 132 bhp rating of the engine, the 100 hr/year operating limitation listed on the PTO, and the fuel input rating of 1,138 scf/hr, the annual emissions are:

$$PE_{NOx} = 132 \text{ bhp} \times 100 \text{ hr/year} \times 1.5 \text{ g/bhp-hr} \times 1 \text{ lb}/453.6 \text{ g}$$
$$PE_{NOx} = 44 \text{ lb/year}$$

$$PE_{SOx} = 132 \text{ bhp} \times 100 \text{ hr/year} \times 0.6 \text{ g/bhp-hr} \times 1 \text{ lb}/453.6 \text{ g}$$
$$PE_{SOx} = 17 \text{ lb/year}$$

$$PE_{PM10} = 1,138 \text{ scf/hr} \times \text{MMscf}/10^6 \text{ scf} \times 10 \text{ lb/MMscf} \times 100 \text{ hr/year}$$
$$PE_{PM10} = 1 \text{ lb/year}$$

$$PE_{CO} = 132 \text{ bhp} \times 100 \text{ hr/year} \times 2.0 \text{ g/bhp-hr} \times 1 \text{ lb}/453.6 \text{ g}$$
$$PE_{CO} = 58 \text{ lb/year}$$

$$PE_{VOC} = 132 \text{ bhp} \times 100 \text{ hr/year} \times 1.5 \text{ g/bhp-hr} \times 1 \text{ lb}/453.6 \text{ g}$$
$$PE_{VOC} = 44 \text{ lb/year}$$

N-477-44-3: GLASS ANNEALING LEHR SERVING THE GLASS MELTING FURNACE

The daily emission rates for this unit were obtained from District Project N-950710. These daily emission rates will be multiplied by 365 days/year to obtain the annual potential to emit.

$$PE_{NOx} = 64.8 \text{ lb/day} \times 365 \text{ days/year}$$
$$PE_{NOx} = 23,652 \text{ lb/year}$$

$$PE_{SOx} = 1.4 \text{ lb/day} \times 365 \text{ days/year}$$
$$PE_{SOx} = 511 \text{ lb/year}$$

$$PE_{PM10} = 2.2 \text{ lb/day} \times 365 \text{ days/year}$$
$$PE_{PM10} = 803 \text{ lb/year}$$

$$PE_{CO} = 10.8 \text{ lb/day} \times 365 \text{ days/year}$$
$$PE_{CO} = 3,942 \text{ lb/year}$$

$$PE_{VOC} = 1.7 \text{ lb/day} \times 365 \text{ days/year}$$
$$PE_{VOC} = 621 \text{ lb/year}$$

N-477-49-2: 344 HP CATERPILLAR MODEL 3306 DITA EMERGENCY DIESEL-FIRED IC ENGINE POWERING A 240 KW ELECTRICAL GENERATOR SERVING A POTABLE WATER SUPPLY

The following emission factors will be used to determine the emission rates for this engine:

Pollutant	Emission Factor	Source
NOx	4.58 g/bhp-hr	PTO N-477-49-2
SOx	0.0051 g/bhp-hr	GEAR 11D
PM ₁₀	0.141 g/bhp-hr	PTO N-477-49-2
CO	0.69 g/bhp-hr	PTO N-477-49-2
VOC	0.14 g/bhp-hr	PTO N-477-49-2

Using the 344 bhp rating of the engine and the 50 hr/year operating limitation listed on the PTO, the annual emissions are:

$$PE_{NOx} = 344 \text{ bhp} \times 50 \text{ hr/year} \times 4.58 \text{ g/bhp-hr} \times 1 \text{ lb}/453.6 \text{ g}$$
$$PE_{NOx} = 174 \text{ lb/year}$$

$$PE_{SOx} = 344 \text{ bhp} \times 50 \text{ hr/year} \times 0.0051 \text{ g/bhp-hr} \times 1 \text{ lb}/453.6 \text{ g}$$
$$PE_{SOx} = 0 \text{ lb/year}$$

$$PE_{PM10} = 344 \text{ bhp} \times 50 \text{ hr/year} \times 0.141 \text{ g/bhp-hr} \times 1 \text{ lb}/453.6 \text{ g}$$
$$PE_{PM10} = 5 \text{ lb/year}$$

$$PE_{CO} = 344 \text{ bhp} \times 50 \text{ hr/year} \times 0.69 \text{ g/bhp-hr} \times 1 \text{ lb/453.6 g}$$

$$PE_{CO} = 26 \text{ lb/year}$$

$$PE_{VOC} = 344 \text{ bhp} \times 50 \text{ hr/year} \times 0.14 \text{ g/bhp-hr} \times 1 \text{ lb/453.6 g}$$

$$PE_{VOC} = 5 \text{ lb/year}$$

N-477-50-1: 208 HP WAUKESHA MODEL F1197GU (SERIAL # 232866) NATURAL GAS-FIRED EMERGENCY IC ENGINE POWERING A WATER PUMP

The following emission factors will be used to determine the emission rates for this engine:

Pollutant	Emission Factor	Source
NOx	7.48 g/bhp-hr	GEAR 11NG, Rich-Burn
SOx	0.0094 g/bhp-hr	GEAR 11NG, Rich-Burn
PM ₁₀	0.063 g/bhp-hr	GEAR 11NG, Rich-Burn
CO	12.3 g/bhp-hr	GEAR 11NG, Rich-Burn
VOC	0.099 g/bhp-hr	GEAR 11NG, Rich-Burn

Using the 208 bhp rating of the engine, the 100 hr/year operating limitation listed on the PTO, the annual emissions are:

$$PE_{NOx} = 208 \text{ bhp} \times 100 \text{ hr/year} \times 7.48 \text{ g/bhp-hr} \times 1 \text{ lb/453.6 g}$$

$$PE_{NOx} = 343 \text{ lb/year}$$

$$PE_{SOx} = 208 \text{ bhp} \times 100 \text{ hr/year} \times 0.0094 \text{ g/bhp-hr} \times 1 \text{ lb/453.6 g}$$

$$PE_{SOx} = 0 \text{ lb/year}$$

$$PE_{PM10} = 208 \text{ bhp} \times 100 \text{ hr/year} \times 0.063 \text{ g/bhp-hr} \times 1 \text{ lb/453.6 g}$$

$$PE_{PM10} = 3 \text{ lb/year}$$

$$PE_{CO} = 208 \text{ bhp} \times 100 \text{ hr/year} \times 12.3 \text{ g/bhp-hr} \times 1 \text{ lb/453.6 g}$$

$$PE_{CO} = 564 \text{ lb/year}$$

$$PE_{VOC} = 208 \text{ bhp} \times 100 \text{ hr/year} \times 0.099 \text{ g/bhp-hr} \times 1 \text{ lb/453.6 g}$$

$$PE_{VOC} = 5 \text{ lb/year}$$

N-477-51-1: 208 HP WAUKESHA MODEL F1197GU NATURAL GAS-FIRED EMERGENCY STANDBY IC ENGINE POWERING A WATER PUMP

The following emission factors will be used to determine the emission rates for this engine:

Pollutant	Emission Factor	Source
NOx	22.0 g/bhp-hr	PTO N-477-51-1
SOx	0.0094 g/bhp-hr	GEAR 11NG, Rich-Burn
PM ₁₀	0.063 g/bhp-hr	PTO N-477-51-1
CO	1.3 g/bhp-hr	PTO N-477-51-1
VOC	0.25 g/bhp-hr	PTO N-477-51-1

Using the 208 bhp rating of the engine, the 100 hr/year operating limitation listed on the PTO, the annual emissions are:

$$PE_{NOx} = 208 \text{ bhp} \times 100 \text{ hr/year} \times 22.0 \text{ g/bhp-hr} \times 1 \text{ lb/453.6 g}$$
$$PE_{NOx} = 1,008 \text{ lb/year}$$

$$PE_{SOx} = 208 \text{ bhp} \times 100 \text{ hr/year} \times 0.0094 \text{ g/bhp-hr} \times 1 \text{ lb/453.6 g}$$
$$PE_{SOx} = 0 \text{ lb/year}$$

$$PE_{PM10} = 208 \text{ bhp} \times 100 \text{ hr/year} \times 0.063 \text{ g/bhp-hr} \times 1 \text{ lb/453.6 g}$$
$$PE_{PM10} = 3 \text{ lb/year}$$

$$PE_{CO} = 208 \text{ bhp} \times 100 \text{ hr/year} \times 1.3 \text{ g/bhp-hr} \times 1 \text{ lb/453.6 g}$$
$$PE_{CO} = 60 \text{ lb/year}$$

$$PE_{VOC} = 208 \text{ bhp} \times 100 \text{ hr/year} \times 0.25 \text{ g/bhp-hr} \times 1 \text{ lb/453.6 g}$$
$$PE_{VOC} = 11 \text{ lb/year}$$

APPENDIX V

Risk Management Review Results

San Joaquin Valley Air Pollution Control District Risk Management Review

To: Jagmeet Khalon – Permit Services
 From: Ester Davila – Technical Services
 Date: July 11, 2008
 Facility Name: Pilkington North America, Inc.
 Location: 500 E Louise Avenue, Lathrop CA 95330
 Application #(s): N-477-10-0
 Project #: N-1082218

A. RMR SUMMARY

Categories	SCR for Glass Furnace (Unit 10-10)	Project Totals	Facility Totals
Prioritization Score	0.0*	0.00	>1
Acute Hazard Index	N/A	0.00	0.0
Chronic Hazard Index	N/A	0.03	0.03
Maximum Individual Cancer Risk (10^{-6})	N/A	0.04	0.89
T-BACT Required?	No		
Special Permit Conditions?	No		

*Prioritization was less than the District's significance level of 0.05; consequently no further analysis was required.

Proposed Permit Conditions

To ensure that human health risks will not exceed District allowable levels; the following permit conditions must be included for:

Unit # 10-0

1. none

B. RMR REPORT**I. Project Description**

Technical Services received a request on July 1, 2008, to perform a Risk Management Review for the proposed installation of an end-of-stack control system consisting of a cooling chamber, scrubber, electrostatic precipitator (ESP) and selective catalytic reduction (SCR) system during the scheduled cold shutdown in March 2009.

II. Analysis

Technical Services performed a prioritization using the District's HEARTs database. Toxic emissions for the project were calculated and provided by the processing engineer. In accordance with the District's *Risk Management Policy for Permitting New and Modified Sources* (APR 1905-1, March 2, 2001), risks from the proposed unit's toxic emissions were prioritized using the procedure in the 1990 CAPCOA Facility Prioritization Guidelines and incorporated in the District's HEART's database. The prioritization score for the proposed unit was less than District's level of significance 0.05 (see RMR Summary Table). Therefore, no further analysis was necessary.

The following parameters were used for the review:

Analysis Parameters Unit 10-0			
Source Type	Point	Location Type	Urban
Stack Height (m)	22.86	Closest Receptor (m)	297
Stack Diameter (m)	0.46	Type of Receptor	Residence
Stack Exit Velocity (m/s)	8.87	Max Hours per Year	8760
Stack Exit Temp. (°K)	473	HCl Emissions (lb/yr)	3,654
HF Emissions (lb/yr)	128		

III. Conclusion

The acute and chronic indices are below 1.0 and the cancer risk associated with the project was less than 1 in a million. In accordance with the District's Risk Management Policy, the project is approved without Toxic Best Available Control Technology (T-BACT).

To ensure that human health risks will not exceed District allowable levels; the permit conditions listed on page 1 of this report must be included for this proposed unit.

These conclusions are based on the data provided by the applicant and the project engineer. Therefore, this analysis is valid only as long as the proposed data and parameters do not change.

Attachments:

- A. RMR request from the project engineer
- B. Additional information from the applicant/project engineer
- C. Prioritization score

APPENDIX VI
Startup Exemption Submittal



PILKINGTON

RECEIVED

SEP 23 2008

**SJVAPCD
NORTHERN REGION**

September 12, 2008

Mr. Jagmeet Kahlon
San Joaquin Valley Air Pollution Control District
4800 Enterprise Way
Modesto, CA 95356-8718

Re: Furnace and PCP Start-up Plan
Pilkington North America, Inc.
500 E. Louise Avenue
Lathrop, CA 95330-0128

Dear Mr. Kahlon:

Attached is the Pilkington Lathrop furnace and PCP start-up plan that you requested. As discussed in the plan, Pilkington requests that the requirement of furnace combustion air ratio being no more than 5% excess oxygen start after the sheet pull.

Pilkington appreciates your assistance in the review of the start-up plan and looks forward to receiving the draft ATC for the furnace cold repair soon. If you have any questions or need additional information, please feel free to call the plant contact Xiaosong Wang at 209-649-5250.

Sincerely,

Chris Miller
Plant Manager

Attachment

Pilkington North America, Inc.
500 E. Louise Avenue Lathrop, CA 95330
Office: (209) 858-5151

Lathrop Furnace and PCP Start-up Plan		
<u>Activity Description</u>	<u>Emissions</u>	<u>Time Frame</u>
Start-up Of Main Port Fire Burners	Emissions associated with combustion of natural gas only. No glass draw from furnace no fill. Emission expected to be below the limits	Day 0
Begin cullet fill (about 290 tons/day rate)	Most of the emissions still from combustion of fuel, no fusion loss of cullet. Emissions expected to be below the limits. NOx emissions will be significantly below the limits due to low fuel usage and low furnace temperature	Day 1 - 4
Begin Batch Fill to achieve glass level in furnace	About 92 tons of batch feed. Process related emissions would be minimal as fill is substantially lower than normal operating conditions. NOx emissions will be below the limits due to low fuel usage	Day 5
Pull the sheet	No change	Day 6
Perform hot sealing of regenerators, gradual ramp-up of pull	Will be operating at higher than normal cullet ratios during this time and optimizing air: fuel ratios to close to stoichiometric levels to minimize emissions	Day 7 - Day 37
Optimization/Stabilization of furnace	Will be operating at higher than normal cullet ratios during this time and optimizing air: fuel ratios to close to stoichiometric levels to minimize emissions	Day 38 - Day 51
Cold Check out of Pollution Control System by Vendor	NA	Day 52 - Day 81
Start-up of Pollution Control System	Control of Air to fuel ratios to under 5% of excess oxygen	Day 82
Optimization of Pollution Control System	Emission control will be adjusted to full normal operating capacity operating parameter ranges optimized and defined	Day 83 - Day 90
Full Normal operation		Day 91
Note: Furnace conditions must be stabilized to begin operation of the pollution control system.		
The primary combustion system needs more than 5% excess oxygen during the heat up of the furnace (before pulling glass from the furnace) for the following reasons:		

The furnace crown can be damaged if it is heated up too fast. Consequently, it has to be heated up at a specific rate in degrees per hour. As a common practice in the glass industry, the heat up rate is controlled by the fuel rate and the combustion air ratio. If the flames are too hot, it can result in localized over heat, which can cause long term performance problems of the crown. A combustion air ratio of 5% or less excess oxygen would result in flames that are too hot during the furnace heat up period.

During the heat up of the furnace, there is no glass pulled from the furnace. The fuel usage will be significantly lower than the normal production level, and the furnace temperature will also be significantly lower than the normal level. It is well established that the NOx formation rate in a combustion system is a very strong function of the temperature. The NOx rate decreases quickly with the temperature decrease. Consequently, the NOx emission rate during the furnace heat up is expected to be minimal.

Based on the above discussion, Pilkington requests that the requirement of furnace combustion air ratio being no more than 5% excess oxygen start after the sheet pull, i.e. start on day 7 in the above schedule.

APPENDIX VII
Quarterly Net Emissions Change

QNEC Calculations

$$\text{QNEC} = (\text{PE2} - \text{BE}) \div 4$$

As shown in Section VII.C.5, BE is equal to PE1 for all pollutants. Therefore, the equation for QNEC reduces to:

$$\text{QNEC} = (\text{PE2} - \text{PE1}) \div 4$$

N-447-10-12

Pollutant	PE2 (lb/year)	PE1 (lb/year)	QNEC (lb/qtr)
NOx	635,100	1,533,000	-224,475.0
SOx	262,800	770,880	-127,020.0
PM10	153,300	262,800	-27,375.0
CO	197,100	206,955	-2,463.75
VOC	7,665	7,665	0

APPENDIX VIII

Early Enhanced Tier 4 Request and District Approval Letter



PILKINGTON

RECEIVED

OCT 26 2010

**SJVAPCD
NORTHERN REGION**

October 25, 2010

Mr. Scott Van Dyken
San Joaquin Valley Air Pollution Control District
4800 Enterprise Way
Modesto, CA 95356

Dear Mr. Van Dyken:

Pilkington North America, Inc. (PNA) hereby submits this letter to meet the requirements of Section 7.2.2.1 of the District Rule 4354.

The concerned facility is PNA's Lathrop plant located at 500 East Louise Ave., Lathrop, CA 95330. PNA hereby declares that its Lathrop furnace will meet the Tier 4 early enhanced option, Section 5.1 Table 1 Tier 4 NOx limit; Section 5.3 Table 3 SOx limit; and Section 5.4 Table 4 PM10 limit by January 1, 2014 or by the next furnace rebuild schedule, whichever is earlier.

PNA plans to install a Selective Catalyst Reduction (SCR) system to meet the stated Early Enhanced Option, Section 5.1 Table 1, Tier 4 NOx limit, a dry scrubber to meet Section 5.3 Table 3 SOx limit, and a dry electrostatic precipitator to meet Section 5.4 Table 4 PM10 limit.

If there are any questions, please contact Xiaosong Wang of my staff at 209 649 5250.

Sincerely,

Chris Miller
Plant Manager



San Joaquin Valley
AIR POLLUTION CONTROL DISTRICT



November 1, 2010

Chris Miller
Pilkington North America, Inc
500 E Louise Avenue
Lathrop, CA 95330-0128

COPY

**Re: Pilkington North America (PNA) Plan to Comply with Rule 4354 – Glass Melting Furnaces (amended 9/16/10)
Permit #: N-477-10
Location: 500 E Louise Ave, Lathrop, California**

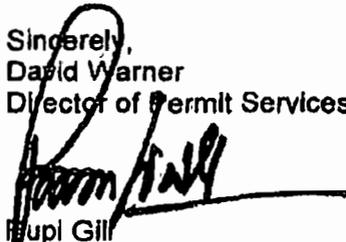
Dear Mr. Miller:

The District has received your letter dated October 25, 2010. In this letter, you have stated that PNA will meet the limits of section 5.1 Table 1, Tier 4 NO_x, early enhanced option by installing a selective catalytic reduction system, section 5.3 Table 3 for SO_x by installing a dry scrubber system, and section 5.4 Table 4 for PM₁₀ by installing electrostatic precipitator system. The furnace will be brought to full compliance with the Rule by January 1, 2014, or by the next furnace rebuild, whichever is earlier.

Please note that we have issued PNA, Authority to Construct (ATC) N-477-10-10, in January, 2009 with Tier 4 NO_x, standard option, and the applicable SO_x, CO, VOC and PM₁₀ limits. SO_x, CO, VOC and PM₁₀ limits in this permit are same as they are listed in the Rule 4354 (amended 9/16/10). However, Tier 4 NO_x standard option limits in this permit are less stringent than the Tier 4 NO_x, early enhanced option limits. Therefore, you must submit an ATC application by June 1, 2012 to incorporate Tier 4 NO_x early enhanced option limits, and other applicable requirements (if any) from Rule 4354 (amended 9/16/10).

If you have any questions, please contact Mr. Jagmeet Kahlon at (209) 557-6452.

Sincerely,
David Varner
Director of Permit Services


Adam Gill
Permit Services Manager
DW: jk

cc: John Cadrett, District Compliance Division (Northern Region)

Sayed Sadredin
Executive Director/Air Pollution Control Officer

Northern Region
4800 Enterprise Way
Mokelumne, CA 95356-8718
Tel: (209) 557-6400 FAX: (209) 557-8475

Central Region (Main Office)
1900 E. Gottysburg Avenue
Fresno, CA 93720-0244
Tel: (559) 230-6000 FAX: (559) 230-6061

Southern Region
34946 Flyover Court
Bakersfield, CA 93308 9725
Tel: 861 392-5500 FAX: 661-392 5585