San Joaquin Valley
AIR POLLUTION CONTROL DISTRICT

HEALTHY AIR LIVING™

AUG 15 2014

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

Re: Notice of Preliminary Decision – Emission Reduction Credits
Facility Number: N-477
Project Number: N-1140725

Dear Mr. Sword:

Enclosed for your review and comment is the District's analysis of Pilkington North America, Inc.'s application for Emission Reduction Credits (ERCs) resulting from the shutdown of a glass furnace, at 500 E Louise Ave in Lathrop, CA. The quantity of ERCs proposed for banking is 440,443 lb-NOx/yr, 179,547 lb-SOx/yr, 101,862 lb-PM10/yr, 34,719 lb-CO/yr, and 349 lb-VOC/yr.

The notice of preliminary decision for this project will be published approximately three days from the date of this letter. After addressing all comments made during the 30-day public notice comment period, the District intends to issue the ERCs. Please submit your written comments on this project within the 30-day public comment period, as specified in the enclosed public notice.

Thank you for your cooperation in this matter. If you have any questions regarding this matter, please contact Mr. James Harader of Permit Services at (209) 557- 6445.

Sincerely,

Arnaud Marjollet
Director of Permit Services

AM:JH

Enclosures

cc: Mike Tollstrup, CARB (w/enclosure) via email
cc: Gerardo C. Rios, EPA (w/enclosure) via email

Seyed Sadredin
Executive Director/Air Pollution Control Officer

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San Joaquin Valley Air Pollution Control District
ERC Banking Application Review
Shutdown of Glass Furnace

Processing Engineer:	James Harader
Lead Engineer:	Nick Peirce
Date:	April 10, 2014
Facility Name:	Pilkington North America Inc.
Mailing Address:	500 E Louise Ave Lathrop, CA 95330
Contact Person:	Kyle Sword
Telephone:	(209) 858-6331
Application Received:	February 28, 2014
Deemed Complete:	April 2, 2014
Project Number:	N-1140725
ERC Certification number:	N-1198-1, -2, -3, -4, & -5

I. Proposal

Pilkington North America Inc., herein referred to as Pilkington, has submitted an application for Emission Reduction Credits (ERCs) banking for shutdown of a glass furnace (N-477-10-8). The quantity of bankable emission reductions for the shutdown of the glass furnace is summarized in the table below:

Pollutant	1st Quarter (lb)	2nd Quarter (lb)	3rd Quarter (lb)	4th Quarter (lb)	Total (lb)
NO_X	106,987	106,252	113,427	113,777	**440,443**
SO_X	43,130	42,817	46,936	46,664	**179,547**
PM_{10}[1]	25,255	25,072	25,107	26,428	**101,862**
CO	7,691	7,610	9,980	9,438	**34,719**
VOC	79	78	99	93	**349**

II. Applicable Rules

Rule 2201 New and Modified Stationary Source Review Rule (04/21/11)
Rule 2301 Emission Reduction Credit Banking (01/19/12)

III. Location of Reduction:

The furnace was located at 500 E Louise Ave in Lathrop, CA.

[1] 95.8% of the PM_{10} is PM2.5, based on the PM2.5 and PM10 fractions for uncontrolled furnaces per AP-42 Table 11.15-3.

IV. Method of Generating Reductions:

Glass production in the glass furnace ceased on January 29, 2014. The NOx CEMs recorded NOx emissions until February 13, 2014, signaling that the cool down of the glass furnace was complete. The facility surrendered the permit to operate to the District on February 25, 2014.

Equipment Description:

N-477-10-8: 200 MMBTU/HR GLASS MELTING FURNACE WITH ECLIPSE COMBUSTION MODEL WRSP10.XX LOW NOX BURNERS AND 3R NOX EMISSIONS CONTROL SYSTEM

V. Calculations

A. Assumption:

- A 750 ton/day furnace fill rate is equivalent to approximately 630 tons of glass pulled (District Project N-1130822)
- 95% of the PM is PM10 (AP-42 Table 11.15-3).
- The results of all Historical Actual Emission (HAE) and Actual Emission Reduction (AER) calculations are rounded to the nearest whole number.

B. Emission factors:

NOx Emission Factor

The following table summarizes the emission factors available for NOx emissions.

Continuous Emissions Monitoring Data	Permit N-477-10-8 Emission Limits	District Rule 4354 Tier 4 NOx Limit
NOx CEMs Data Provided by Applicant (greater than 2.9 lb/ton for each month)	241.5 lb/hr on a block 24-hour average 4,140 lb/day on a rolling 30-day average	Facility is Subject to Early Enhanced Option of Rule 4354, which requires the following: 3.4 lb/ton (block 24-hr average) 2.9 lb/ton (rolling 30-day average)

The District Rule 4354 early enhanced option requirement of 2.9 lb-NOx/ton (rolling 30-day average) results in the lowest emission rate for NOx during the baseline period Therefore, the 2.9 lb/ton emission factor will be used to calculate the quantity of NOx emissions available for banking.

SOx Emission Factor

Permit N-477-10-8 Emission Limit	District Rule 4354 SOx Limit	Source Test Results for SOx	
88.0 lb/hr	1.7 lb/ton (block 24-hr average) 1.2 lb/ton (rolling 30-day average)	12/15/10	2.02 lb/ton[2]
		11/17/11	1.86 lb/ton[3]
		12/4/12	1.14 lb/ton[4]

During some months in the baseline period, the 1.2 lb-SOx/ton limit is the lowest emission factor, while during other months in the baseline period, the source tested SOx emission rate is the lower value. The lower of these two applicable emission rates, for the month being evaluated, will be used to calculate the quantity of SOx emissions available for banking.

[2] A source test result of 37.17 lb-SOx/hr was measured at a furnace fill rate of 524 tons/day. The equivalent lb/ton of glass pulled emission factor is:

EF = 37.17 lb-SOx/hr ÷ (524 tons fill/day x 630 tons glass/750 tons fill ÷ 24 hr/day)
EF= 2.02 lb-SOx/ton glass

[3] A source test result of 39.19 lb-SOx/hr was measured at a furnace fill rate of 603 tons/day. The equivalent lb/ton of glass pulled emission factor is:

EF = 39.19 lb-SOx/hr ÷ (603 tons fill/day x 630 tons glass/750 tons fill ÷ 24 hr/day)
EF= 1.86 lb-SOx/ton glass

[4] A source test result of 24.02 lb-SOx/hr was measured at a furnace fill rate of 603.5 tons/day. The equivalent lb/ton of glass pulled emission factor is:

EF = 24.02 lb-SOx/hr ÷ (603.5 tons fill/day x 630 tons glass/750 tons fill ÷ 24 hr/day)
EF= 1.14 lb-SOx/ton glass

PM10 Emission Factor

Permit N-477-10-8 Emission Limit	District Rule 4354 PM10 Limit	Source Test Results for PM10	
30.0 lb/hr	0.7 lb/ton (block 24-hr average)	12/15/10	0.58 lb/ton[5]
		11/17/11	0.70 lb/ton[6]
		12/4/12	0.67 lb/ton[7]

The source test emission rates result in the lowest emission rate for PM10 during the baseline period. Therefore, the source test emission factors will be used to calculate the quantity of PM10 emissions available for banking.

[5] A source test result of 11.24 lb-PM/hr was measured at a furnace fill rate of 524 tons/day. A PM10 fraction of 0.95 lb-PM10/lb-PM will be applied to determine the PM10 emissions. The equivalent lb/ton of glass pulled emission factor is:

EF = 11.24 lb-PM10/hr ÷ (524 tons fill/day x 630 tons glass/750 tons fill ÷ 24 hr/day) x 0.95 lb-PM10/lb-PM
EF= 0.58 lb-PM10/ton glass

[6] A source test result of 15.55 lb-PM/hr was measured at a furnace fill rate of 603 tons/day. A PM10 fraction of 0.95 lb-PM10/lb-PM will be applied to determine the PM10 emissions. The equivalent lb/ton of glass pulled emission factor is:

EF = 15.55 lb-PM10/hr ÷ (603 tons fill/day x 630 tons glass/750 tons fill ÷ 24 hr/day) x 0.95 lb-PM10/lb-PM
EF= 0.70 lb-PM10/ton glass

[7] A source test result of 14.97 lb-PM/hr was measured at a furnace fill rate of 603.5 tons/day. A PM10 fraction of 0.95 lb-PM10/lb-PM will be applied to determine the PM10 emissions. The equivalent lb/ton of glass pulled emission factor is:

EF = 14.97 lb-PM/hr ÷ (603.5 tons fill/day x 630 tons glass/750 tons fill ÷ 24 hr/day) x 0.95 lb-PM10/lb-PM
EF= 0.67 lb-PM10/ton glass

CO Emission Factor

Permit N-477-10-8 Emission Limit	District Rule 4354 CO Limit	Source Test Results for CO	
567.0 lb/day	For an oxygen assisted unit 0.9 lb/ton	12/15/10	0.25 lb/ton[8]
		11/17/11	0.26 lb/ton[9]
		12/4/12	0.16 lb/ton[10]

The source test emission rates result in the lowest emission rate for CO during the baseline period. Therefore, the source test emission factors will be used to calculate the quantity of CO emissions available for banking.

[8] A source test result of 4.54 lb-CO/hr was measured at a furnace fill rate of 524 tons/day. The equivalent lb/ton of glass pulled emission factor is:

EF = 4.54 lb-CO/hr ÷ (524 tons fill/day x 630 tons glass/750 tons fill ÷ 24 hr/day)
EF= 0.26 lb-CO/ton glass

[9] A source test result of 5.43 lb-CO/hr was measured at a furnace fill rate of 603 tons/day. The equivalent lb/ton of glass pulled emission factor is:

EF = 5.43 lb-CO/hr ÷ (603 tons fill/day x 630 tons glass/750 tons fill ÷ 24 hr/day)
EF= 0.26 lb-CO/ton glass

[10] A source test result of 3.33 lb-CO/hr was measured at a furnace fill rate of 603.5 tons/day. The equivalent lb/ton of glass pulled emission factor is:

EF = 3.33 lb-CO/hr ÷ (603.5 tons fill/day x 630 tons glass/750 tons fill ÷ 24 hr/day)
EF = 0.16 lb-CO/ton glass

VOC Emission Factor

Permit N-477-10-8 Emission Limit	District Rule 4354 VOC Limit	Source Test Results for VOC	
21.0 lb/day	For an oxygen assisted unit 0.10 lb/ton	12/15/10	0.0027 lb/ton[11]
		11/17/11	0.0024 lb/ton[12]
		12/4/12	0.0019 lb/ton[13]

The source test emission rates result in the lowest emission rate for VOC during the baseline period. Therefore, the source test emission factors will be used to calculate the quantity of VOC emissions available for banking.

C. Baseline Period Determination:

Section 3.8 of District Rule 2201 defines the baseline period as "two consecutive years of operation immediately prior to the submission of the complete application" or "another time period of at least two consecutive years within the five years immediately prior to the submission of the complete application if it is more representative of normal source operation".

[11] A source test result of 0.05 lb-VOC/hr was measured at a furnace fill rate of 524 tons/day. The equivalent lb/ton of glass pulled emission factor is:

EF = 0.05 lb-VOC/hr ÷ (524 tons fill/day x 630 tons glass/750 tons fill ÷ 24 hr/day)
EF= 0.0027 lb-VOC/ton glass

[12] A source test result of 0.05 lb-VOC/hr was measured at a furnace fill rate of 603 tons/day. The equivalent lb/ton of glass pulled emission factor is:

EF = 0.05 lb-VOC/hr ÷ (603 tons fill/day x 630 tons glass/750 tons fill ÷ 24 hr/day)
EF= 0.0024 lb-VOC/ton glass

[13] A source test result of 0.04 lb-VOC/hr was measured at a furnace fill rate of 603.5 tons/day. The equivalent lb/ton of glass pulled emission factor is:

EF = 0.04 lb-VOC/hr ÷ (603.5 tons fill/day x 630 tons glass/750 tons fill ÷ 24 hr/day)
EF = 0.0019 lb-VOC/ton glass

In order to determine the period that is most representative of normal source operation, the annual average glass production was determined for the five year period immediately preceding the ERC application. Next, the glass production from each two-consecutive-year (24-month) period starting with the month in which the application was received was determined and compared to the five-year average glass production value. This comparison is repeated for each two-consecutive-year period until the two-consecutive-year period with average glass production closest to the five year average glass production is found. The two consecutive year period with average glass production closest to the five year average glass production is considered to be most representative of normal source operation.

Using the above methodology, the period with the most representative glass production rate was Quarter 3, 2011 through Quarter 2, 2013 (see Appendix II of this document). Therefore, July 2011 through June 2013 is considered to be most representative of normal source operation and will be used as the baseline period.

D. Historical Actual Emissions (HAE)

Historical Actual Emissions (HAEs) are emissions that actually occurred during the baseline period, after discounting for

1. Any emission reductions required or encumbered by any laws, rules, regulations, agreements, orders, or permits; and
2. Any emissions reductions attributed to a control measure noticed for workshop, or proposed or contained in a State Implementation Plan, and
3. Any emission reductions proposed in the District air quality plan for attaining the annual reductions required by the California Clean Air Act, and
4. Any Actual Emissions in excess of those required or encumbered by any laws, rules, regulations, orders, or permits.

The average annual historical actual emissions from the glass furnace are listed in the following table (see Appendix III of this document for detailed calculations):

Pollutant	1st Quarter (lb)	2nd Quarter (lb)	3rd Quarter (lb)	4th Quarter (lb)
NO_X	118,874	118,058	126,030	126,419
SO_X	47,922	47,575	52,151	51,849
PM_{10}	28,061	27,858	27,897	29,364
CO	8,546	8,456	11,089	10,487
VOC	88	87	110	103

E. Actual Emissions Reductions

Per District Rule 2201, section 4.12, Actual Emissions Reductions (AER) shall be calculated, on a pollutant-by-pollutant basis, as follows:

$$AER = HAE - PE2$$

Where:

HAE = Historic Actual Emissions
PE2 = Post Project Potential to Emit

Since the unit has been shut down, PE2 is equal to zero. Therefore, AER is equal to HAE.

F. Air Quality Improvement Deduction

Per District Rule 2201, section 4.12.1, prior to banking, AER shall be discounted by 10% for Air Quality Improvement Deduction. Therefore, the Air Quality Improvement Deduction for emissions from the permit unit is summarized in the following table:

Pollutant	1st Quarter (lb)	2nd Quarter (lb)	3rd Quarter (lb)	4th Quarter (lb)
NO_X	11,887	11,806	12,603	12,642
SO_X	4,792	4,758	5,215	5,185
PM_{10}	2,806	2,786	2,790	2,936
CO	855	846	1,109	1,049
VOC	9	9	11	10

G. Bankable Emissions Reductions

The bankable emissions reductions are determined by subtraction of the air quality improvement deduction from the Actual Emissions Reductions. The bankable ERC of this unit is summarized in the table below:

Pollutant	1st Quarter (lb)	2nd Quarter (lb)	3rd Quarter (lb)	4th Quarter (lb)
NO_X	106,987	106,252	113,427	113,777
SO_X	43,130	42,817	46,936	46,664
PM_{10}	25,255	25,072	25,107	26,428
CO	7,691	7,610	9,980	9,438
VOC	79	78	99	93

VI. Compliance

To comply with the definition of Actual Emissions Reductions (Rule 2201, Section 3.2.1), the reduction must be:

A. Real

The emissions reductions are real since the reductions were generated by permanent shutdown the entire glass manufacturing facility.

B. Enforceable

The reductions are enforceable since the permit for the glass furnace has been surrendered to the District. Operating the equipment without permits would result in enforcement action being taken.

C. Quantifiable

The reductions are quantifiable since the reductions were calculated utilizing District-approved emission factors, and the actual baseline period glass production.

D. Permanent

The reductions are considered to permanent since the glass furnace has been permanently shut down and the Permit to Operate has been surrendered to the District. Operation of the equipment without permits would result in enforcement action. Moreover, the glass production from this facility will not be shifted to other facilities in the District.

E. Surplus

This section will contain an explanation of what actions were taken to ensure that all emission reductions were surplus.

The following Regulations apply to Glass Melting Furnaces:

SJVAPCD Rule 4354: Glass Melting Furnaces (5/19/11)

The District Rule 4354 early enhanced emission requirements were shown earlier in the emission factor section of this evaluation. The Historical Actual Emissions were calculated such a manner that they are fully surplus of District Rule 4354 requirements.

BAAQMD Regulation 9, Rule 12: Nitrogen Oxides from Glass Melting Furnaces (1/19/94)

This rule limits NOx emissions from glass furnaces to 5.5 lb-NOx/ton, on a 3-hour average. The historical actual emissions were based on an emission factor of 2.9 lb-NOx/ton on a 30-day rolling average. Therefore, the Historical Actual Emissions were calculated in such a manner that they are fully surplus from the requirements of this Rule.

SCAQMD Rule 1117: Emissions of Oxides of Nitrogen from Glass Melting Furnaces (1/6/84)

This rule limits NOx emissions from glass furnaces to 4.0 lb-NOx/ton, on a 24-hr average. The historical actual emissions were based on an emission factor of 2.9 lb-NOx/ton on a 30-day rolling average. Therefore, the Historical Actual Emissions were calculated in such a manner that they are fully surplus from the requirements of this Rule.

40 CFR 60 Subpart CC: Standards of Performance for Glass Manufacturing Plants

The glass furnace was constructed prior to June 15, 1979 and was never modified or reconstructed. Therefore, Subpart CC requirements don't apply to the furnace and the Historical Actual Emissions are surplus of this regulation.

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

The furnace was prohibited by a permit condition from using arsenic as a raw material; therefore, Subpart N requirements did not apply to this furnace and the Historical Actual Emissions are surplus of this regulation.

40 CFR 63 Subpart SSSSSS: National Emission Standard for Hazardous Air Pollutants from Glass Manufacturing Area Sources

The furnace did not utilize any glass manufacturing metal HAPs. Therefore, Subpart SSSSSS requirements did not apply to this furnace and the Historical Actual Emissions are surplus of this regulation.

The Historical Actual Emissions are determined to be Surplus.

F. Not used for the approval of an Authority to Construct or as Offsets

The ERCs generated by permanent shutdown the entire facility were not used in the approval of an Authority to Construct or as offsets for any projects.

G. Timely Submittal

Pursuant to District Rule 2301, Section 4.2, in order to deem emissions reductions eligible for banking, an application for ERC has been filed no later than 180 days after the emissions reductions occurred.

Emissions from the glass furnace ceased on February 13, 2014. The emissions reduction banking application was received on February 28, 2014. Therefore, the application was received within 180 days of the date the reductions occurred. The ERC application was filed in a timely manner.

VII. Recommendation

Pending a successful public noticing period, issue Emission Reduction Credit Certificates to Pilkington for NO_X, SO_X, PM_{10}, CO, and VOC in the following amounts:

Pollutant	1st Quarter (lb)	2nd Quarter (lb)	3rd Quarter (lb)	4th Quarter (lb)	Total (lb)
NO_X	106,987	106,252	113,427	113,777	440,443
SO_X	43,130	42,817	46,936	46,664	179,547
PM_{10}	25,255	25,072	25,107	26,428	101,862
CO	7,691	7,610	9,980	9,438	34,719
VOC	79	78	99	93	349

Appendices

Appendix I	Permit to Operate N-477-10-8
Appendix II	Baseline Period Determination
Appendix III	Historical Actual Emissions Calculations
Appendix IV	Draft Emissions Reduction Credit Certificates

Appendix I

Permit to Operate
N-477-10-8

INSPECTION

EXPIRATION DATE: 08/31/2016

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

WORKSHEET

LOCATION: 500 E LOUISE AVE
LATHROP, CA 95330

INSPECT PROGRAM PARTICIPANT: NO

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

CONDITIONS

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
11. 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] 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 NOx, 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 ñ 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. NOx 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 NOx 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. NOx 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. NOx 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]
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: SMAX = (6.3 * GYPRATE) - 39.5; where SMAX = 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: SMAX = (8.5 * SLTRATE)-39.5; where SMAX=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 NOx, 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 NOx, 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 NOx 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]

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

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

Appendix II

Baseline Period Determination

The following table shows the data used to determine the baseline period for the glass melting furnace. The end of the 24-month period with the average annual glass production baseline that is most representative is in bold font and the baseline period is highlighted in the table.

Month	Tons of Glass Drawn	Average Annual Tons of Glass Drawn for 24-month period	Difference Between 5-year Annual Average and 24-Month Period Annual Average
Quarter 2 2009	38,358	--	--
Quarter 3 2009	39,489	--	--
Quarter 4 2009	44,685	--	--
Quarter 1 2010	42,965	--	--
Quarter 2 2010	45,235	--	--
Quarter 3 2010	44,792	--	--
Quarter 4 2010	42,810	--	--
Quarter 1 2011	42,113	170,224	5,018
Quarter 2 2011	45,246	173,668	8,462
Quarter 3 2011	42,075	174,961	9,755
Quarter 4 2011	42,915	174,076	8,870
Quarter 1 2012	39,738	172,462	7,256
Quarter 2 2012	38,861	169,275	4,069
Quarter 3 2012	44,842	169,300	4,094
Quarter 4 2012	44,270	170,030	4,824
Quarter 1 2013	42,244	170,096	4,890
Quarter 2 2013	**42,558**	**168,752**	**3,546**
Quarter 3 2013	45,424	170,426	5,220
Quarter 4 2013	42,569	170,253	5,047
Quarter 1 2014	14,841	157,805	-7,401
Average Annual Glass Production	**165,206**		

Appendix III

Historical Actual Emissions Calculations

NOx Emission Calculations

Month	Tons of Glass Drawn	NOx Emission Factor (lb/ton)	PE NOx (lb)
Jul-11	14,576	2.9	42,270
Aug-11	14,138	2.9	41,000
Sep-11	13,361	2.9	38,747
Oct-11	15,340	2.9	44,486
Nov-11	14,490	2.9	42,021
Dec-11	13,085	2.9	37,947
Jan-12	13,200	2.9	38,280
Feb-12	11,638	2.9	33,750
Mar-12	14,900	2.9	43,210
Apr-12	11,869	2.9	34,420
May-12	13,394	2.9	38,843
Jun-12	13,598	2.9	39,434
Jul-12	15,578	2.9	45,176
Aug-12	15,064	2.9	43,686
Sep-12	14,200	2.9	41,180
Oct-12	14,071	2.9	40,806
Nov-12	14,796	2.9	42,908
Dec-12	15,403	2.9	44,669
Jan-13	14,353	2.9	41,624
Feb-13	12,680	2.9	36,772
Mar-13	15,211	2.9	44,112
Apr-13	14,551	2.9	42,198
May-13	14,826	2.9	42,995
Jun-13	13,181	2.9	38,225

Quarter	Average NOx (lb)
1st Quarter	118,874
2nd Quarter	118,058
3rd Quarter	126,030
4th Quarter	126,419

SOx Emission Calculations

Month	Tons of Glass Drawn	SOx Emission Factor (lb/ton)	PE SOx (lb)
Jul-11	14,576	1.2	17,491
Aug-11	14,138	1.2	16,966
Sep-11	13,361	1.2	16,033
Oct-11	15,340	1.2	18,408
Nov-11	14,490	1.2	17,388
Dec-11	13,085	1.2	15,702
Jan-12	13,200	1.2	15,840
Feb-12	11,638	1.2	13,966
Mar-12	14,900	1.2	17,880
Apr-12	11,869	1.2	14,243
May-12	13,394	1.2	16,073
Jun-12	13,598	1.2	16,318
Jul-12	15,578	1.2	18,694
Aug-12	15,064	1.2	18,077
Sep-12	14,200	1.2	17,040
Oct-12	14,071	1.2	16,885
Nov-12	14,796	1.2	17,755
Dec-12	15,403	1.14	17,559
Jan-13	14,353	1.14	16,362
Feb-13	12,680	1.14	14,455
Mar-13	15,211	1.14	17,341
Apr-13	14,551	1.14	16,588
May-13	14,826	1.14	16,902
Jun-13	13,181	1.14	15,026

Quarter	Average SOx (lb)
1st Quarter	47,922
2nd Quarter	47,575
3rd Quarter	52,151
4th Quarter	51,849

PM10 Emission Calculations

Month	Tons of Glass Drawn	PM10 Emission Factor (lb/ton)	PE PM10 (lb)
Jul-11	14,576	0.58	8,454
Aug-11	14,138	0.58	8,200
Sep-11	13,361	0.58	7,749
Oct-11	15,340	0.58	8,897
Nov-11	14,490	0.70	10,143
Dec-11	13,085	0.70	9,160
Jan-12	13,200	0.70	9,240
Feb-12	11,638	0.70	8,147
Mar-12	14,900	0.70	10,430
Apr-12	11,869	0.70	8,308
May-12	13,394	0.70	9,376
Jun-12	13,598	0.70	9,519
Jul-12	15,578	0.70	10,905
Aug-12	15,064	0.70	10,545
Sep-12	14,200	0.70	9,940
Oct-12	14,071	0.70	9,850
Nov-12	14,796	0.70	10,357
Dec-12	15,403	0.67	10,320
Jan-13	14,353	0.67	9,617
Feb-13	12,680	0.67	8,496
Mar-13	15,211	0.67	10,191
Apr-13	14,551	0.67	9,749
May-13	14,826	0.67	9,933
Jun-13	13,181	0.67	8,831

Quarter	Average PM10 (lb)
1st Quarter	28,061
2nd Quarter	27,858
3rd Quarter	27,897
4th Quarter	29,364

CO Emission Calculations

Month	Tons of Glass Drawn	CO Emission Factor (lb/ton)	PE CO (lb)
Jul-11	14,576	0.25	3,644
Aug-11	14,138	0.25	3,535
Sep-11	13,361	0.25	3,340
Oct-11	15,340	0.25	3,835
Nov-11	14,490	0.26	3,767
Dec-11	13,085	0.26	3,402
Jan-12	13,200	0.26	3,432
Feb-12	11,638	0.26	3,026
Mar-12	14,900	0.26	3,874
Apr-12	11,869	0.26	3,086
May-12	13,394	0.26	3,482
Jun-12	13,598	0.26	3,535
Jul-12	15,578	0.26	4,050
Aug-12	15,064	0.26	3,917
Sep-12	14,200	0.26	3,692
Oct-12	14,071	0.26	3,658
Nov-12	14,796	0.26	3,847
Dec-12	15,403	0.16	2,464
Jan-13	14,353	0.16	2,296
Feb-13	12,680	0.16	2,029
Mar-13	15,211	0.16	2,434
Apr-13	14,551	0.16	2,328
May-13	14,826	0.16	2,372
Jun-13	13,181	0.16	2,109

Quarter	Average CO (lb)
1st Quarter	8,546
2nd Quarter	8,456
3rd Quarter	11,089
4th Quarter	10,487

VOC Emission Calculations

Month	Tons of Glass Drawn	VOC Emission Factor (lb/ton)	PE VOC (lb)
Jul-11	14,576	0.0027	39
Aug-11	14,138	0.0027	38
Sep-11	13,361	0.0027	36
Oct-11	15,340	0.0027	41
Nov-11	14,490	0.0024	35
Dec-11	13,085	0.0024	31
Jan-12	13,200	0.0024	32
Feb-12	11,638	0.0024	28
Mar-12	14,900	0.0024	36
Apr-12	11,869	0.0024	28
May-12	13,394	0.0024	32
Jun-12	13,598	0.0024	33
Jul-12	15,578	0.0024	37
Aug-12	15,064	0.0024	36
Sep-12	14,200	0.0024	34
Oct-12	14,071	0.0024	34
Nov-12	14,796	0.0024	36
Dec-12	15,403	0.0019	29
Jan-13	14,353	0.0019	27
Feb-13	12,680	0.0019	24
Mar-13	15,211	0.0019	29
Apr-13	14,551	0.0019	28
May-13	14,826	0.0019	28
Jun-13	13,181	0.0019	25

Quarter	Average VOC (lb)
1st Quarter	88
2nd Quarter	87
3rd Quarter	110
4th Quarter	103

Appendix IV

Draft Emissions Reductions Credit Certificates

San Joaquin Valley
Air Pollution Control District

Northern Regional Office • 4800 Enterprise Way • Modesto, CA 95356-8718

Emission Reduction Credit Certificate

DRAFT

N-1198-1

ISSUED TO: PILKINGTON NORTH AMERICA, INC

ISSUED DATE: <DRAFT>

LOCATION OF REDUCTION: 500 E LOUISE AVE
LATHROP, CA 95330

For VOC Reduction In The Amount Of:

Quarter 1	Quarter 2	Quarter 3	Quarter 4
79 lbs	78 lbs	99 lbs	93 lbs

[ ] Conditions Attached

Method Of Reduction
[ ] Shutdown of Entire Stationary Source
[X] Shutdown of Emissions Units
[ ] Other

Shutdown of glass furnace

Use of these credits outside the San Joaquin Valley Unified Air Pollution Control District (SJVUAPCD) is not allowed without express written authorization by the SJVUAPCD.

Seyed Sadredin, Executive Director / APCO

DRAFT

Arnaud Marjollet, Director of Permit Services

Aug 7 2014 5:07PM – HARADER J

San Joaquin Valley
Air Pollution Control District

Northern Regional Office • 4800 Enterprise Way • Modesto, CA 95356-8718

Emission Reduction Credit Certificate

N-1198-2

DRAFT

ISSUED TO: PILKINGTON NORTH AMERICA, INC

ISSUED DATE: <DRAFT>

LOCATION OF REDUCTION: 500 E LOUISE AVE
LATHROP, CA 95330

For NOx Reduction In The Amount Of:

Quarter 1	Quarter 2	Quarter 3	Quarter 4
106,987 lbs	106,252 lbs	113,427 lbs	113,777 lbs

[ ] Conditions Attached

Method Of Reduction
[ ] Shutdown of Entire Stationary Source
[X] Shutdown of Emissions Units
[ ] Other

Shutdown of glass furnace

Use of these credits outside the San Joaquin Valley Unified Air Pollution Control District (SJVUAPCD) is not allowed without express written authorization by the SJVUAPCD.

Seyed Sadredin, Executive Director / APCO

DRAFT

Arnaud Marjollet, Director of Permit Services

Aug 7 2014 5:07PM HARADERJ

San Joaquin Valley
Air Pollution Control District

Northern Regional Office • 4800 Enterprise Way • Modesto, CA 95356-8718

Emission Reduction Credit Certificate

DRAFT

N-1198-3

ISSUED TO: PILKINGTON NORTH AMERICA, INC

ISSUED DATE: <DRAFT>

LOCATION OF REDUCTION: 500 E LOUISE AVE
LATHROP, CA 95330

For CO Reduction In The Amount Of:

Quarter 1	Quarter 2	Quarter 3	Quarter 4
7,691 lbs	7,610 lbs	9,980 lbs	9,438 lbs

[ ] Conditions Attached

Method Of Reduction
[ ] Shutdown of Entire Stationary Source
[X] Shutdown of Emissions Units
[ ] Other

Shutdown of glass furnace

Use of these credits outside the San Joaquin Valley Unified Air Pollution Control District (SJVUAPCD) is not allowed without express written authorization by the SJVUAPCD.

Seyed Sadredin, Executive Director / APCO

DRAFT

Arnaud Marjollet, Director of Permit Services

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San Joaquin Valley
Air Pollution Control District

Northern Regional Office • 4800 Enterprise Way • Modesto, CA 95356-8718

Emission Reduction Credit Certificate

DRAFT

N-1198-4

ISSUED TO: PILKINGTON NORTH AMERICA, INC

ISSUED DATE: <DRAFT>

LOCATION OF REDUCTION: 500 E LOUISE AVE
LATHROP, CA 95330

For PM10 Reduction In The Amount Of:

Quarter 1	Quarter 2	Quarter 3	Quarter 4
25,255 lbs	25,072 lbs	25,107 lbs	26,428 lbs

[ ] Conditions Attached

Method Of Reduction

[ ] Shutdown of Entire Stationary Source
[X] Shutdown of Emissions Units
[ ] Other

Shutdown of glass furnace

Use of these credits outside the San Joaquin Valley Unified Air Pollution Control District (SJVUAPCD) is not allowed without express written authorization by the SJVUAPCD.

Seyed Sadredin, Executive Director / APCO

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Arnaud Marjollet, Director of Permit Services

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Air Pollution Control District

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Emission Reduction Credit Certificate

N-1198-5

DRAFT

ISSUED TO: PILKINGTON NORTH AMERICA, INC

ISSUED DATE: <DRAFT>

LOCATION OF REDUCTION: 500 E LOUISE AVE
LATHROP, CA 95330

For SOx Reduction In The Amount Of:

Quarter 1	Quarter 2	Quarter 3	Quarter 4
43,130 lbs	42,817 lbs	46,936 lbs	46,664 lbs

[ ] Conditions Attached

Method Of Reduction

[ ] Shutdown of Entire Stationary Source
[X] Shutdown of Emissions Units
[ ] Other

Shutdown of glass furnace

Use of these credits outside the San Joaquin Valley Unified Air Pollution Control District (SJVUAPCD) is not allowed without express written authorization by the SJVUAPCD.

Seyed Sadredin, Executive Director / APCO

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Arnaud Marjollet, Director of Permit Services

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