



APR 28 2010

Daniel Armagost
Owens Brockway Glass Container Inc.
14700 W. Schulte Road
Tracy, CA 95377-8628

**Re: Proposed Authorities to Construct / Certificate of Conformity (Minor Mod)
District Facility # N-593
Project # N-1101306**

Dear Mr. Armagost:

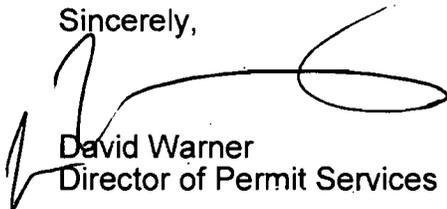
Enclosed for your review is the District's analysis of your application for Authorities to Construct for the facility identified above. You have requested that a Certificate of Conformity with the procedural requirements of 40 CFR Part 70 be issued with this project. The applicant is proposing to remove the existing shared electrostatic precipitator that serves the three glass furnaces and install a SOx scrubber and new electrostatic precipitator on each glass furnace. This project is for compliance with the SOx and PM10 emission limits from the latest revisions to District Rule 4354.

After addressing any EPA comments made during the 45-day comment period, the Authorities to Construct will be issued to the facility with a Certificate of Conformity. Prior to operating with modifications authorized by the Authorities 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. Rupl 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/ cm

Enclosures

Seyed Sadredin
Executive Director/Air Pollution Control Officer

Northern Region
4800 Enterprise Way
Modesto, CA 95356-8718
Tel: (209) 557-6400 FAX: (209) 557-6475

Central Region (Main Office)
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San Joaquin Valley

AIR POLLUTION CONTROL DISTRICT



HEALTHY AIR LIVING™

APR 28 2010

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

Re: **Proposed Authorities to Construct / Certificate of Conformity (Minor Mod)**
District Facility # N-593
Project # N-1101306

Dear Mr. Rios:

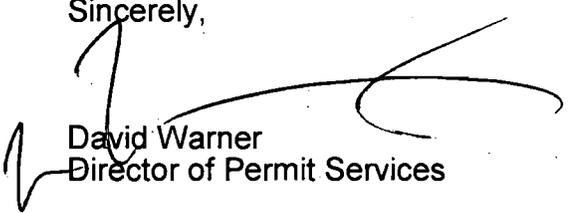
Enclosed for your review is the District's engineering evaluation of an application for Authorities to Construct for Owens Brockway Glass Container Inc., located at 14700 W. Schulte Road in Tracy, CA, which has been issued a Title V permit. Owens Brockway Glass Container Inc. is requesting that a Certificate of Conformity, with the procedural requirements of 40 CFR Part 70, be issued with this project. The applicant is proposing to remove the existing shared electrostatic precipitator that serves the three glass furnaces and install a SOx scrubber and new electrostatic precipitator on each glass furnace. This project is for compliance with the SOx and PM10 emission limits from the latest revisions to District Rule 4354.

Enclosed is the engineering evaluation of this application, a copy of the current Title V permit, and proposed Authorities to Construct #'s N-593-10-14, '-12-12, '-13-10, and '-42-1 with Certificate of Conformity. After demonstrating compliance with the Authorities 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

DW: JH/cm

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

Facility Name: Owens Brockway Glass Container Inc. Date: April 27, 2010
Mailing Address: 14700 W. Schulte Road Engineer: James Harader
Tracy, CA 95377-8628 Lead Engineer: Nick Peirce
Contact Person: Daniel Armagost
Telephone: (209) 836-8296
Fax: (209) 835-5411
Application #'s: N-593-10-14, '-12-12, '-13-10, '-42-1
Project #: N-1101306
Deemed Complete: April 27, 2010

I. Proposal

N-593-10-14, '-12-12, '-13-10

Owens-Brockway has applied for Authority to Construct permits to modify three existing glass melting furnaces (N-593-12-11, N-593-13-8, and N-593-10-12) as follows:

- To remove the existing shared Electrostatic Precipitator (ESP) and Continuous Emissions Monitoring systems (CEMS) that currently serves the glass melting furnaces, N-593-10, '-12, and '-13.
- To install a new air pollution control, monitoring & exhaust system onto each glass melting furnace to satisfy the District's Rule 4354 SOx emission limit of 0.9 pounds per ton of glass produced, on a rolling 30-day average, and to satisfy the District's PM10 emission limit of 0.5 pounds per ton of glass produced, on a 24-hour block average, both effective on and after January 1, 2011. Each new air pollution control system will include a Dry Reagent (or Trona) Injection Scrubber, an Electrostatic Precipitator, and Continuous Emission Monitoring systems for NOx, SOx, CO, opacity, flow rate, and temperature.
- Each new electrostatic precipitator will be equipped with bin-vented storage silos for collection of dust from the electrostatic precipitator, and a vacuum transfer system for transfer of the collected dust to the existing batch handling system of each furnace for reintroduction of the collected dust into the glass melting process.

The modifications to each furnace control system will be conducted while the furnace is operating. The new emission control system and ductwork leading to the existing furnace will be installed. During the final stages, the furnace glass pull rate will be lowered to less than 50 tons/day. The final ductwork connecting the furnace and new control system will be installed and the exhaust will be rerouted through the new ductwork and control system. The entire process of transferring the exhaust from the old control system to the new control system is expected to take approximately two to three days.

Currently, these furnaces are limited to aggregate NO_x emissions of 3.6 lb/ton, while each individual unit is currently allowed to operate at emission rates up to 4.0 lb/ton. The aggregate 3.6 lb-NO_x/ton limit will become obsolete following the proposed modifications, as each furnace will have its own emissions control system. Following the modification, each individual furnace will continue to operate with an emissions limit of 4.0 lb-NO_x/ton. There will not be an increase in daily or annual NO_x emissions since these furnaces will continue to be limited to the existing aggregate emission limits of 3392.2 lb-NO_x/day and 606.54 lb-NO_x/year, each derived from the 3.6 lb-NO_x/ton emission factor.

Note, the proposed modifications will also allow the facility to install Selective Catalytic Reduction systems in the future, in order to meet the District Rule 4354 NO_x emission requirements that will come into effect in January 1, 2014.

Copies of the current Permits to Operate for the glass melting furnaces are included in Appendix II.

N-593-42-1

The facility has applied for an Authority to Construct permit to install a new reagent silo and reagent dosing system. This system will receive trona or dry reagent from trucks. The system will prepare the trona and/or dry reagent for use in the new SO_x scrubbers on units N-593-10, '-12, and '-13.

Title V

Owens-Brockway received their original Title V Permit on June 15, 1998 for facility ID N-593, and currently operates under a Renewed Permit that expires on July 31, 2012. This modification can be classified as a Title V minor modification pursuant to 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. Owens-Brockway must apply to administratively amend their Title V Operating Permit to include the requirements of the ATC(s) issued with this project.

II. Applicable Rules

Rule 1080	Stack Monitoring (12/17/92)
Rule 1081	Source Sampling (12/16/93)
Rule 2201	New and Modified Stationary Source Review Rule (9/21/06)
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 (10/16/08)
Rule 4801	Sulfur Compounds (12/17/92)
40 CFR Part 64	Compliance Assurance Monitoring
CH&SC 41700	Health Risk Assessment
CH&SC 42301.6	School Notice
Public Resources Code 21000-21177: California Environmental Quality Act (CEQA)	

III. Project Location

This equipment is located at 14700 W. Schulte Road in Tracy, CA and the District has confirmed that this equipment is not located within 1,000 feet of a K-12 School.

IV. Process Description

Facility Description

This facility is a manufacturer of container glass for various food and beverage industries. The glass is manufactured by taking raw materials, including cullet (recycled glass), and melting them together in a furnace to form the glass. The raw materials used include the cullet, silica sand with soda ash, solomite, salt cake, and calcium, depending on the type of glass each furnace is producing. These raw materials are received by rail car or truck and conveyed to existing storage silos. As needed, the raw materials are released from each of the storage silos and deposited into a gathering conveyer, which then transfers the raw materials to a main feed conveyor.

Glass Melting Furnaces

After the raw materials are deposited on the main feed conveyor, the materials are then deposited into one of the three direct-fired glass melting furnaces. Cullet is also introduced into each glass melting furnace by cullet hoppers. The raw materials and cullet are melted together in the glass furnaces, then weight portions of the melted glass (called gobs) are transferred by a conveying system to the bottle forming area for final processing. After the bottles are formed, they are inspected and packaged for shipment.

Exhaust gasses from the furnaces include emissions from the combustion of natural gas or LPG in the glass furnace and emissions released from the molten glass. The exhaust gasses from all three glass furnaces are currently routed to a shared electrostatic precipitator for the control of particulate emissions. Following the proposed modifications in this project, the glass furnaces will no longer share exhaust emission control devices. Rather, each glass furnace will be equipped with a dry reagent (or Trona) injection scrubber for SOx emissions control and an electrostatic precipitator for particulate emissions control. The particulate matter captured by each electrostatic precipitator will be collected and recycled into the glass manufacturing process.

Glass Furnace Process Rates:

The latest revisions to District Rule 4354, Glass Melting Furnaces required glass pull rate limits be included on the Permit to Operate. Currently, units N-593-10 and N-593-12 don't include daily glass pull rate limitations. The facility has proposed a daily glass pull rate of 417 tons/day and 250 tons/day, respectively, for units N-593-10 and N-593-12. The current permit for glass melting furnace N-593-13 lists a raw material process weight of 340 tons/day on the permit. In addition to the daily limitations, the current permits include annual raw material process limits of 146,000 tons/day, 87,235 tons/day, and 124,100 tons/day for units N-593-10, '-12, and '-13, respectively.

Some of the above throughput limits are based on the melting furnace glass pull rate, while others limits are based upon the raw material input into the furnace. Ideally, all of the limits will be included on the permit in terms of tons of glass pulled; therefore, the raw material limits should be converted to tons of glass pulled limits. Fusion loss in a glass melting furnace typically causes the glass pull rate to be less than the raw material input into a glass melting furnace.

Fusion loss is the decrease in weight of the final glass product, compared to the process inlet weight, and is attributed to the evaporation of moisture in the raw materials along with the weight loss of trace elements that are driven from the molten glass during the melting process. While there is fusion loss associated with the processing of raw materials, the fusion loss associated with processing cullet is minimal.

Owens Brockway's intent is to maximize cullet usage, ideally to 100% of the raw material used. The environmental benefits of maximizing cullet usage include lower emissions, energy conservation, greenhouse gas emission reductions, and a reduction in solid waste. In fact, historically, each glass furnace has operated utilizing up to 100% cullet. Since the furnaces have historically operated with up to 100% cullet, the fusion loss will be assumed to be minimal and the glass pull rate limits will be set equal to the existing raw material process rates.

Glass Melting Furnace Process Rate Information (From Project N-1030430)			
	N-593-10	N-593-12	N-593-13
Furnace ID	22-C	22-A	22-B
Primary Fuel	Natural Gas	Natural Gas	Natural Gas
Backup Fuel	LPG	LPG	LPG
Maximum Daily Glass Pull Rate (tons)	417	250	340
Maximum Annual Glass Pull Rate (tons)	146,000	87,235	124,100
Maximum Burner Rating (MMBtu/hr)	60	29	67

Note, furnaces N-593-10 and N-593-12 annual pull rates are not based on 365 days of operation, while furnace N-593-13's annual pull rate is.

Trona/Dry Reagent Receiving System

Each of the new SOx scrubbers will utilize Trona, or equivalent dry reagents, to neutralize SOx from the glass furnace exhaust stream. The trona/dry reagents are delivered to the facility by trucks, with the trucks unloading the trona/dry reagent into a storage silo. The storage silo is equipped with a bin-vent filter for control of PM₁₀ emissions. The trona/dry reagent is delivered each SOx scrubber via an enclosed system.

Operating Schedule:

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

V. Equipment Listing

Pre-Project Equipment Descriptions:

- N-593-10-12: 60 MMBTU/HR GLASS MELTING FURNACE #22-C WITH A CONTINUOUS EMISSIONS MONITORING SYSTEM (CEMS) SHARED WITH FURNACES A AND B AT A COMMON STACK, SERVED BY AN ELECTROSTATIC PRECIPITATOR (ESP)
- N-593-12-11: 29 MMBTU/HR GLASS MELTING OXYGEN-ENRICHED AIR-STAGING (OEAS) FURNACE #22-A WITH A CONTINUOUS EMISSIONS MONITORING SYSTEM (CEMS) SHARED WITH FURNACES B AND C AT A COMMON STACK, SERVED BY AN ELECTROSTATIC PRECIPITATOR (ESP)
- N-593-13-8: 67 MMBTU/HR GLASS MELTING OXYGEN-ENRICHED AIR-STAGING (OEAS) FURNACE #22-B WITH CONTINUOUS EMISSIONS MONITORING SYSTEM (CEMS) SHARED WITH FURNACES A AND C AT A COMMON STACK, SERVED BY AN ELECTROSTATIC PRECIPITATOR (ESP)

Post Project Equipment Description:

N-593-10-14

N-593-10-14: 60 MMBTU/HR OXYGEN-ENRICHED AIR-STAGING (OEAS) GLASS MELTING FURNACE #22-C WITH A CUSTOM GEA BISCHOFF INC. DRY SOX SCRUBBER, A GEA BISCHOFF MODEL BS 780 10 / 5.0 / 2 X 11 / 0.4 ELECTROSTATIC PRECIPITATOR, AND TWO 125 CUBIC FOOT ELECTROSTATIC PRECIPITATOR DUST STORAGE SILOS EACH WITH A MET-PRO CORP FLEX-KLEEN VENT FILTER (OR EQUIVALENT)

Vent Filter (One per 125 ft ³ Silo)	
Manufacturer	Met-Pro Corporation
Model Number	Flex Kleen
Bag Type	Cotton Bag

N-593-12-12

N-593-12-12: 29 MMBTU/HR OXYGEN-ENRICHED AIR-STAGING (OEAS) GLASS MELTING FURNACE #22-A WITH A CUSTOM GEA BISCHOFF INC. DRY SOX SCRUBBER, A GEA BISCHOFF MODEL BS 780 10 / 5.0 / 2 X 7 / 0.4 ELECTROSTATIC PRECIPITATOR, AND TWO 125 CUBIC FOOT ELECTROSTATIC PRECIPITATOR DUST STORAGE SILOS EACH WITH A MET-PRO CORP FLEX-KLEEN VENT FILTER (OR EQUIVALENT)

Vent Filter (One per 125 ft ³ Silo)	
Manufacturer	Met-Pro Corporation
Model Number	Flex Kleen
Bag Type	Cotton Bag

N-593-13-10

N-593-13-10: 67 MMBTU/HR OXYGEN-ENRICHED AIR STAGING (OEAS) GLASS MELTING FURNACE #22-B WITH A CUSTOM GEA BISCHOFF INC. DRY SOX SCRUBBER, A GEA BISCHOFF MODEL BS 780 10 / 5.0 / 2 X 11 / 0.4 ELECTROSTATIC PRECIPITATOR, AND TWO 125 CUBIC FOOT ELECTROSTATIC PRECIPITATOR DUST STORAGE SILOS EACH WITH A MET-PRO CORP FLEX-KLEEN VENT FILTER (OR EQUIVALENT)

Vent Filter (One per 125 ft ³ Silo)	
Manufacturer	Met-Pro Corporation
Model Number	Flex Kleen
Bag Type	Cotton Bag

N-593-42-1

N-593-42-1: TRONA/DRY REAGENT RECEIVING AND STORAGE OPERATION WITH A 2800 CUBIC FOOT STORAGE SILO SERVED BY A MET-PRO CORP FLEX-KLEEN VENT FILTER (OR EQUIVALENT)

Vent Filter	
Manufacturer	Met-Pro Corporation
Model Number	Flex Kleen
Bag Type	Cotton Bag

VI. Emission Control Technology Evaluation

N-593-10-14, '-12-11, '-13-9

Each furnace utilizes PUC regulated natural gas as primary fuel and LPG as backup fuel.

For NO_x control, each unit is equipped with an oxygen-enriched air staging (OEAS) combustion system that reduces NO_x emissions by minimizing the availability of nitrogen. Nitrogen makes up about 78% of ambient air. In an uncontrolled furnace, ambient air is introduced into the furnace with fuel gas for combustion. NO_x emissions are formed by a chemical reaction of the nitrogen in the combustion air during the combustion process. By removing the availability of nitrogen from the combustion air, NO_x emissions are reduced. The OEAS technology utilizes combustion air staging to control NO_x formation by reducing oxygen available in the flames high temperature zone and improving flame temperature uniformity. The amount of primary combustion air entering through the ports is reduced to decrease NO_x formation in the flame, and oxygen enriched air is injected into the furnace near the exhaust ports to complete the combustion in a second stage within the furnace.

For particulate matter control, each furnace will be equipped with an electrostatic precipitator (ESP). The ESP removes particulate matter (PM) emissions from the flue gas by electrically charging the particles and collecting them onto the grounded surfaces. The particulates are then removed by rapping the collection plates.

For SO_x control, each furnace will be equipped with a dry scrubber. Dry scrubbing involves injecting a dry reagent into the gas stream as gas enters a reaction chamber. The chamber serves as a location for the SO_x and reagent to mix and react to form a dry particulate (salt). The reacted dry particulate flows downstream into the electrostatic precipitator, where it is collected by the electrostatic precipitator. The reaction 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 some minor radiant heat losses. Several dry reagents can be injected; most of these are sodium or calcium based. The SO_x removal of a dry injection system will be a function of the inlet temperature of the gas stream, 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. Typical dry injection systems have achieved greater than 50% removal of SO_x emissions.

Additionally, each glass furnace's ESP is equipped with two ESP dust silos. These dust silos are served by bin vent filters for particulate matter control. Each bin vent filter is expected to control 99% of PM₁₀ emissions.

N-593-42-1

The dry reagent storage silo is served by a bin vent filter for particulate matter control. The bin vent filter is expected to control 99% of PM₁₀ emissions.

VII. General Calculations

A. Assumptions

N-593-10-14

- The glass furnace operates 24 hours/day, 365 days/year.
- No proposed changes in furnace size or process weight (glass pulled).
- All particulate matter emitted at the electrostatic precipitator exhaust is PM₁₀.
- All particulate matter emitted from the electrostatic precipitator dust storage silos is PM₁₀.
- The maximum daily throughput for the electrostatic precipitator dust storage silos is 1.81 tons/day. (per applicant)
- All other assumptions will be stated as they are made.

N-593-12-11

- The glass furnace operates 24 hours/day, 365 days/year.
- No proposed changes in furnace size or process weight (glass pulled).
- All particulate matter emitted at the electrostatic precipitator exhaust is PM₁₀.
- All particulate matter emitted from the electrostatic precipitator dust storage silos is PM₁₀.
- The maximum daily throughput for the electrostatic precipitator dust storage silos is 1.23 tons/day. (per applicant)
- All other assumptions will be stated as they are made.

N-593-13-10

- The glass furnace operates 24 hours/day, 365 days/year.
- No proposed changes in furnace size or process weight (glass pulled).
- All particulate matter emitted at the electrostatic precipitator exhaust is PM₁₀.
- All particulate matter emitted from the electrostatic precipitator dust storage silos is PM₁₀.
- The maximum daily throughput for the electrostatic precipitator dust storage silos is 1.64 tons/day. (per applicant)
- All other assumptions will be stated as they are made.

N-593-42-1

- The trona/dry reagent receiving operation operates 24 hours/day, 365 days/year.
- All particulate matter emitted from the trona/dry reagent receiving operation is PM₁₀.
- The maximum daily throughput for the trona/dry reagent receiving operation is 4.97 tons/day. (per applicant)
- All other assumptions will be stated as they are made.

B. Emission Factors

1. Pre-Project Emission Factors

Individual Emission Factors for N-593-10-12

Glass Furnace #22-C Pre-Project Emission Factors		
Pollutant	Emission Factors/Rates	Source
NO _x	4.0 lb/ton of glass pulled ¹	PTO N-593-10-12
SO _x	3.4 lb/ton of glass pulled and 58.9 lb/hr	Project N-1030430 and PTO N-593-10-12
PM ₁₀	0.9 lb/ton of glass pulled (uncontrolled) and 6.59 lb/hr (controlled)	PTO N-593-10-12
CO	300 ppmvd @ 8%O ₂	PTO N-593-10-12
VOC	20 ppmvd @ 8% O ₂	PTO N-593-10-12

¹ Note, the current permit does not limit NO_x based on lb/ton of glass pulled for individual furnaces. Pursuant to the applicant, furnace 22-C is designed to meet 4.0 lb/ton of glass pulled on an individual basis.

Individual Emission Factors for N-593-12-11

Glass Furnace #22-A Pre-Project Emission Factors		
Pollutant	Emission Factors/Rates	Source
NO _x	4.0 lb/ton of glass pulled ²	Applicant and PTO N-593-12-11
SO _x	3.4 lb/ton of glass pulled and 33.9 lb/hr	Project N-1030430 and PTO N-593-12-11
PM ₁₀	0.9 lb/ton of glass pulled (uncontrolled) and 3.78 lb/hr (controlled)	PTO N-593-12-11
CO	300 ppmvd @ 8% O ₂ and 1.0 lb/ton of glass pulled	Project N-1030430 and PTO N-593-12-11
VOC	0.25 lb/ton of glass pulled and 20 ppmvd @ 8% O ₂	Project N-1030430 and PTO N-593-12-11

Individual Emission Factors for N-593-13-8

Glass Furnace #22-B Pre-Project Emission Factors		
Pollutant	Emission Factors/Rates	Source
NO _x	4.0 lb/ton of glass pulled ³	Applicant and PTO N-593-13-8
SO _x	3.4 lb/ton of glass pulled and 48.2 lb/hr	Project N-1030430
PM ₁₀	0.9 lb-PM ₁₀ /ton of glass pulled (uncontrolled) and 5.38 lb-PM ₁₀ /hr (controlled)	PTO N-593-13-8
CO	300 ppmvd @ 8% O ₂ and 1.0 lb/ton of glass pulled	Project N-1030430 and PTO N-593-13-8
VOC	0.25 lb/ton of glass pulled and 20 ppmvd @ 8% O ₂	Project N-1030430 and PTO N-593-13-8

² Note, the current permit does not limit NO_x based on lb/ton of glass pulled for individual furnaces. Pursuant to the applicant, furnace 22-A is designed to meet 4.0 lb/ton of glass pulled on an individual basis.

³ Note, the current permit does not limit NO_x based on lb/ton of glass pulled for individual furnaces. Pursuant to the applicant, furnace 22-B is designed to meet 4.0 lb/ton of glass pulled on an individual basis.

Aggregate Emission Factors and Limitations for N-593-10, '-12, and '-13

Currently, all three furnaces exhaust through a common stack. Therefore, the facility is currently subject to combined aggregate emission limitations. The following aggregate limits currently apply to all three of the existing glass furnaces:

(Combined Emission Limits for N-593-10, '-12, and '-13)		
Pollutant	Emission Factors/Rates	Source
NO _x	3.6 lb/ton of glass pulled (24-hour average) and 3,392.2 lb/day and 606.540 tons/year	PTO's N-593-10-12, N-593-12-11, and N-593-13-8
SO _x	1,867.0 lb/day and 295 tons/year	PTO's N-593-10-12, N-593-12-11, and N-593-13-8
PM ₁₀	300.0 lb/day (total PM ₁₀) and 105.0 lb/day (filterable PM ₁₀) and 55 tons/year	PTO's N-593-10-12, N-593-12-11, and N-593-13-8
CO	300 ppmvd @ 8% O ₂ and 1.0 lb/ton of glass pulled	PTO's N-593-10-12, N-593-12-11, and N-593-13-8
VOC	20 ppmvd @ 8% O ₂ and 0.25 lb/ton of glass pulled	PTO's N-593-10-12, N-593-12-11, and N-593-13-8

N-593-42-1

This silo is a new unit. The pre-project emission factors are not applicable.

2. Post-Project Emission Factors

Individual Emission Factors for N-593-10-14

Glass Furnace #22-C Post-Project Emission Factors		
Pollutant	Emission Factors/Rates	Source
NO _x	4.0 lb/ton of glass pulled	Pre-Project
SO _x	0.9 lb/ton of glass pulled	Applicant
PM ₁₀	0.5 lb/ton of glass pulled (controlled) and 6.59 lb/hr (controlled)	Pre-Project and Applicant
CO	300 ppmvd @ 8% O ₂ and 1.0 lb/ton of glass pulled	Applicant
VOC	20 ppmvd @ 8% O ₂ and 0.25 lb/ton of glass pulled	PTO N-593-10-12

In addition to the emissions from the glass furnace, emissions are expected from the electrostatic precipitator dust handling system. There is no specific emissions factor listed in AP-42 for glass manufacturing electrostatic precipitator dust. The electrostatic precipitator dust is expected to be no finer than cement dust. Therefore, an emissions factor of 0.00034 lb/ton of material (AP-42 Table 11.12-2 for pneumatic cement unloading to an elevated storage silo, controlled) will be utilized to estimate emissions from this operation.

Individual Emission Factors for N-593-12-11

Glass Furnace #22-A Post-Project Emission Factors		
Pollutant	Emission Factors/Rates	Source
NO _x	4.0 lb/ton of glass pulled	Pre-Project and Applicant
SO _x	0.9 lb/ton of glass pulled	Applicant
PM ₁₀	0.5 lb/ton of glass pulled (controlled) and 3.78 lb/hr (controlled)	Pre-Project and Applicant
CO	300 ppmvd @ 8% O ₂ and 1.0 lb/ton of glass pulled	Pre-Project
VOC	0.25 lb/ton of glass pulled and 20 ppmvd @ 8% O ₂	Pre-Project

In addition to the emissions from the glass furnace, emissions are expected from the electrostatic precipitator dust handling system. There is no specific emissions factor listed in AP-42 for glass manufacturing electrostatic precipitator dust. The electrostatic precipitator dust is expected to be no finer than cement dust. Therefore, an emissions factor of 0.00034 lb/ton of material (AP-42 Table 11.12-2 for pneumatic cement unloading to an elevated storage silo, controlled) will be utilized to estimate emissions from this operation.

Individual Emission Factors for N-593-13-10

Glass Furnace #22-B Post-Project Emission Factors		
Pollutant	Emission Factors/Rates	Source
NO _x	4.0 lb/ton of glass pulled	Pre-Project and Applicant
SO _x	0.9 lb/ton of glass pulled	Applicant
PM ₁₀	0.5 lb-PM ₁₀ /ton of glass pulled (controlled) and 5.38 lb-PM ₁₀ /hr (controlled)	Pre-Project and Applicant
CO	300 ppmvd @ 8% O ₂ and 1.0 lb/ton of glass pulled	Pre-Project
VOC	0.25 lb/ton of glass pulled and 20 ppmvd @ 8% O ₂	Pre-Project

In addition to the emissions from the glass furnace, particulate emissions are expected from the electrostatic precipitator dust handling system. There is no specific emissions factor listed in AP-42 for glass manufacturing electrostatic precipitator dust. The electrostatic precipitator dust is expected to be no finer than cement dust. Therefore, an emissions factor of 0.00034 lb-PM₁₀/ton of material (AP-42 Table 11.12-2 for pneumatic cement unloading to an elevated storage silo, controlled) will be utilized to estimate emissions from this operation.

Combined Emission Factors and Limitations for N-593-10, '-12, and '-13

Currently, all three furnaces exhaust through a common stack. Therefore, the facility is currently subject to combined aggregate emission limitations. The following aggregate limits currently apply to all three of the existing glass furnaces:

Aggregate Emission Limitations (Combined Emission Limits for N-593-10, -12, and -13)		
Pollutant	Emission Factors/Rates	Source
NO _x	3,392.2 lb/day and 606.540 tons/year	PTO's N-593-10-12, N-593-12-11, and N-593-13-8
PM ₁₀	300.0 lb/day (total PM ₁₀) and 105.0 lb/day (filterable PM ₁₀) and 55 tons/year	PTO's N-593-10-12, N-593-12-11, and N-593-13-8

N-593-42-1

Particulate emissions are expected from receiving trona and/or dry reagent. There is no specific emissions factor listed in AP-42 for trona/dry reagent receiving to a silo. The trona/dry reagent is expected to be no finer than cement dust. Therefore, an emissions factor of 0.00034 lb-PM₁₀/ton of material (AP-42 Table 11.12-2 for pneumatic cement unloading to an elevated storage silo, controlled) will be utilized to estimate emissions from this operation.

C. Calculations

1. Pre-Project Potential to Emit (PE1)

N-593-10-12

The following is a summary of the pre-project emissions for furnace 22-C. With the exception of the daily SO_x, daily NO_x, and annual PM₁₀ emissions, calculated below, the emission rates were obtained from the engineering evaluation from the most recent project for this furnace, N-1030430.

Pollutant	Daily Emissions (lb/day)	Annual Emissions (lb/year)
NO _x	1,668.0	584,000
SO _x	1417.8	496,400
PM ₁₀	158.1	57,707
CO	442.9	161,680
VOC	16.8	6,160

Daily NO_x and SO_x emissions were miscalculated in the previous project. Therefore, the daily NO_x and SO_x emissions will be recalculated. The daily NO_x and SO_x emissions will be based upon the respective emissions factors for this furnace, and a daily processing rate of 417 tons of glass pulled.

Daily NO_x = 417 tons-glass/day x 4.0 lb-NO_x/ton = 1,668.0 lb-NO_x/day

Daily SO_x = 417 tons-glass/day x 3.4 lb-SO_x/ton = 1,417.8 lb-SO_x/day

Annual PM₁₀ emissions were miscalculated in the previous project. Therefore, they will be recalculated in this project. Annual PM₁₀ emissions are based upon the daily emission rate and a 365 day/year operating schedule.

$$\text{Annual PM}_{10} = 158.1 \text{ lb-PM}_{10}/\text{day} \times 365 \text{ days/year} = 57,707 \text{ lb-PM}_{10}/\text{year}$$

N-593-12-11

The following is a summary of the pre-project emissions for furnace 22-A. With the exception the NOx emissions rates and daily SOx emission rate, calculated below, the emission rates were obtained from the engineering evaluation from the most recent project for this furnace, N-1030430.

Pollutant	Daily Emissions (lb/day)	Annual Emissions (lb/year)
NOx	1,000.0	348,940
SOx	850.0	296,600
PM ₁₀	90.8	33,140
CO	214.1	78,140
VOC	8.1	2,980

The daily and annual NOx emissions were miscalculated in the previous project. Therefore, they will be recalculated in this project. The daily and annual NOx emissions will be based upon the glass pull rate, in tons, and an emissions factor of 4.0 lb-NOx/ton.

$$\text{Daily NOx} = 250 \text{ ton-glass pulled/day} \times 4.0 \text{ lb-NOx/ton of glass pulled}$$

$$\text{Daily NOx} = 1,000.0 \text{ lb-NOx/day}$$

$$\text{Annual NOx} = 87,235 \text{ ton-glass pulled/year} \times 4.0 \text{ lb-NOx/ton of glass pulled}$$

$$\text{Annual NOx} = 348,940 \text{ lb-NOx/year}$$

Additionally, the daily SOx emissions were miscalculated in the previous project. The daily SOx emissions are calculated below using the SOx emission limit and the glass pull rate of the furnace, in tons/day.

$$\text{Daily SOx} = 250 \text{ tons-glass pulled/day} \times 3.4 \text{ lb-SOx/ton of glass pulled}$$

$$\text{Daily SOx} = 850.0 \text{ lb-SOx/day}$$

N-593-13-8

The following is a summary of the pre-project emissions for furnace 22-B. With the exception the NOx, SOx, and CO emissions rates, calculated below, the emission rates were obtained from the engineering evaluation from the most recent project for this furnace, N-1030430.

Pollutant	Daily Emissions (lb/day)	Annual Emissions (lb/year)
NOx	1,360.0	496,400
SOx	1,156.0	421,940
PM ₁₀	129.2	47,160
CO	340.0	124,100
VOC	18.8	6,860

The daily and annual NOx emissions were miscalculated in the previous project. Therefore, they will be recalculated in this project. The daily and annual NOx emissions will be based upon the glass pull rate, in tons, and an emissions factor of 4.0 lb-NOx/ton.

Daily NOx = 340 ton-glass pulled/day x 4.0 lb-NOx/ton of glass pulled
Daily NOx = 1,360.0 lb-NOx/day

Annual NOx = 124,100 ton-glass pulled/year x 4.0 lb-NOx/ton of glass pulled
Annual NOx = 496,400 lb-NOx/year

The daily and annual SOx emissions were miscalculated in the previous project. Therefore, they will be recalculated in this project. The daily and annual SOx emissions will be based upon the glass pull rate, in tons, and an emissions factor of 3.4 lb-SOx/ton.

Daily SOx = 340 ton-glass pulled/day x 3.4 lb-SOx/ton of glass pulled
Daily SOx = 1,156.0 lb-SOx/day

Annual SOx = 124,100 ton-glass pulled/year x 3.4 lb-SOx/ton of glass pulled
Annual SOx = 421,940 lb-SOx/year

The daily and annual CO emissions were miscalculated in the previous project. Therefore, they will be recalculated in this project. The daily and annual CO emissions will be based upon the glass pull rate, in tons, and an emissions factor of 1.0 lb-CO/ton.

Daily CO = 340 ton-glass pulled/day x 1.0 lb-CO/ton of glass pulled
Daily CO = 340.0 lb-CO/day

Annual CO = 124,100 ton-glass pulled/year x 1.0 lb-CO/ton of glass pulled
Annual CO = 124,100 lb-CO/year

Combined Pre-Project Emissions from Units N-593-10, -12, and -13

Daily Pre-Project Emissions

Unit	NOx (lb/day)	SOx (lb/day)	PM ₁₀ (lb/day)	CO (lb/day)	VOC (lb/day)
N-593-10	1,668.0	1,417.8	158.1	442.9	16.8
N-593-12	1,000.0	850.0	90.8	214.1	8.1
N-593-13	1,360.0	1,156.0	129.2	340.0	18.8
Total	4,028.0	3,423.8	378.1	997.0	43.70
Aggregate Limit	3,392.2	1867.0	300.0	N/A	N/A

Annual Pre-Project Emissions

Unit	NOx (lb/year)	SOx (lb/year)	PM ₁₀ (lb/year)	CO (lb/year)	VOC (lb/year)
N-593-10	584,000	496,400	57,707	161,680	6,160
N-593-12	348,940	296,600	33,140	78,140	2,980
N-593-13	496,400	421,940	47,160	124,100	6,860
Total	1,429,340	1,214,940	138,006	363,920	16,000
Aggregate Limit	1,213,080	590,000	110,000	N/A	N/A

2. Post Project Potential to Emit (PE2)

N-593-10-14

The applicant is not proposing a change in the daily or annual NOx, PM₁₀, CO, or VOC emissions for the furnace. This project will result in a reduction of SO_x emissions. The post-project SO_x emission rates are calculated below. Additionally, this project will include the addition of two electrostatic precipitator dust storage silos. PM₁₀ emissions for the storage silos are calculated below, and the silo emissions are included in the table below.

Pollutant	Daily Emissions (lb/day)	Annual Emissions (lb/year)
NOx	1,668.0	584,000
SOx	375.3	131,400
PM ₁₀	158.1	57,706
CO	442.9	161,680
VOC	16.8	6,160

SOx

The daily emission rate will be calculated using the 417 tons of glass pulled/day rate and the 0.9 lb/ton of glass pulled emissions rate.

Daily SO_x = 417 tons of glass/day x 0.9 lb/ton of glass = 375.3 lb-SO_x/day

Similarly, the annual emissions rate will be calculated using the lb-SO_x/ton emissions limit with an annual glass pulled rate of 146,000 tons/year.

Annual SO_x = 146,000 ton of glass/year x 0.9 lb/ton of glass = 131,400 lb-SO_x/year

PM₁₀ from ESP Dust Storage Silos

The following emission calculation is applicable to both of the ESP dust storage silos that are associated with electrostatic precipitator serving furnace 22-C. Emissions are based upon the proposed maximum throughput and the emissions factor that was presented in earlier in this document.

Daily PM₁₀ = 1.81 tons of ESP dust/day x 0.00034 lb-PM₁₀/ton

Daily PM₁₀ = 0.0006 lb-PM₁₀/day ⇒ **0.0 lb-PM₁₀/day**

Annual PM₁₀ = 0.0 lb-PM₁₀/day x 365 days/year ⇒ **0 lb-PM₁₀/year**

N-593-12-11

The applicant is not proposing a change in the daily or annual NO_x, PM₁₀, CO, or VOC emissions for the furnace. This project will result in a reduction of SO_x emissions. The post-project SO_x emission rates are calculated below. Additionally, this project will include the addition of two electrostatic precipitator dust storage silos. PM₁₀ emissions for the storage silos are calculated below, and the silo emissions are included in the table below.

Pollutant	Daily Emissions (lb/day)	Annual Emissions (lb/year)
NO _x	1,000.0	348,940
SO _x	225.0	78,512
PM ₁₀	90.8	33,140
CO	214.1	78,140
VOC	8.1	2,980

SO_x

The daily emission rate will be calculated using the 250 tons of glass pulled/day rate and the 0.9 lb/ton of glass pulled emissions rate.

Daily SO_x = 250 tons of glass/day x 0.9 lb/ton of glass = 225.0 lb-SO_x/day

Similarly, the annual emissions rate will be calculated using using the lb-SO_x/ton emissions limit with an annual glass pulled rate of 87,235 tons/year.

Annual SO_x = 87,235 ton of glass/year x 0.9 lb/ton of glass = 78,512 lb-SO_x/year

PM₁₀ from ESP Dust Storage Silos

The following emission calculation is applicable to both of the ESP dust storage silos that are associated with electrostatic precipitator serving furnace 22-A. Emissions are based upon the proposed maximum throughput and the emissions factor that was presented in earlier in this document.

$$\text{Daily PM}_{10} = 1.23 \text{ tons of ESP dust/day} \times 0.00034 \text{ lb-PM}_{10}/\text{ton}$$

$$\text{Daily PM}_{10} = 0.0004 \text{ lb-PM}_{10}/\text{day} \Rightarrow \mathbf{0.0 \text{ lb-PM}_{10}/\text{day}}$$

$$\text{Annual PM}_{10} = 0.0 \text{ lb-PM}_{10}/\text{day} \times 365 \text{ days/year} \Rightarrow \mathbf{0 \text{ lb-PM}_{10}/\text{year}}$$

N-593-13-10

The applicant is not proposing a change in the daily or annual NO_x, PM₁₀, CO, or VOC emissions for the furnace. This project will result in a reduction of SO_x emissions. The post-project SO_x emission rates are calculated below. Additionally, this project will include the addition of two electrostatic precipitator dust storage silos. PM₁₀ emissions for the storage silos are calculated below, and the silo emissions are included in the table below.

Pollutant	Daily Emissions (lb/day)	Annual Emissions (lb/year)
NO _x	1,360.0	496,400
SO _x	306.0	111,690
PM ₁₀	129.2	47,160
CO	340.0	124,100
VOC	18.8	6,860

SO_x

The daily emission rate will be calculated using the 340 tons of glass pulled/day rate and the 0.9 lb/ton of glass pulled emissions rate.

$$\text{Daily SO}_x = 340 \text{ tons of glass/day} \times 0.9 \text{ lb/ton of glass} = 306.0 \text{ lb-SO}_x/\text{day}$$

Similarly, the annual emissions rate will be calculated using using the lb-SO_x/ton emissions limit with an annual glass pulled rate of 124,100 tons/year.

$$\text{Annual SO}_x = 124,100 \text{ ton of glass/year} \times 0.9 \text{ lb/ton of glass} = 111,690 \text{ lb-SO}_x/\text{year}$$

PM₁₀ from ESP Dust Storage Silos

The following emission calculation is applicable to both of the ESP dust storage silos that are associated with electrostatic precipitator serving furnace 22-B. Emissions are based upon the proposed maximum throughput and the emissions factor that was presented in earlier in this document.

Daily PM₁₀ = 1.64 tons of ESP dust/day x 0.00034 lb-PM₁₀/ton
 Daily PM₁₀ = 0.0006 lb-PM₁₀/day ⇒ **0.0 lb-PM₁₀/day**

Annual PM₁₀ = 0.0 lb-PM₁₀/day x 365 days/year ⇒ **0 lb-PM₁₀/year**

Combined Post-Project Emissions from Units N-593-10, -12, and -13

Daily Post-Project Emissions

Unit	NOx (lb/day)	SOx (lb/day)	PM ₁₀ (lb/day)	CO (lb/day)	VOC (lb/day)
N-593-10	1,668.0	375.3	158.1	442.9	16.8
N-593-12	1,000.0	225.0	90.8	214.1	8.1
N-593-13	1,360.0	306.0	129.2	340.0	18.8
Total	4,028.0	906.3	378.1	997.0	43.70
Aggregate Limit	3,392.2	1867.0	300.0	N/A	N/A

Annual Post-Project Emissions

Unit	NOx (lb/year)	SOx (lb/year)	PM ₁₀ (lb/year)	CO (lb/year)	VOC (lb/year)
N-593-10	584,000	131,400	57,706	161,680	6,160
N-593-12	348,940	78,512	33,140	78,140	2,980
N-593-13	496,400	111,690	47,160	124,100	6,860
Total	1,429,340	321,602	138,006	363,920	16,000
Aggregate Limit	1,213,080	590,000	110,000	N/A	N/A

N-593-42-1

PM₁₀ from Trona/Dry Reagent Receiving and Storage

The following emission calculation is applicable to the trona/dry reagent receiving and storage operation. Emissions are based upon the proposed maximum throughput and the emissions factor that was presented in earlier in this document.

Daily PM₁₀ = 4.97 tons of ESP dust/day x 0.00034 lb-PM₁₀/ton
 Daily PM₁₀ = 0.0017 lb-PM₁₀/day ⇒ **0.0 lb-PM₁₀/day**

Annual PM₁₀ = 0.0 lb-PM₁₀/day x 365 days/year ⇒ **0 lb-PM₁₀/year**

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.

SSPE1 was obtained from the application review for project N-1060023, with the exception of the units being modified in this project. There are outstanding ATC's for units N-593-2, '-11, '-37, '-38, '-39, '-40, and '-41; however, these ATCs do not result in a change in emissions.

Pre-Project Stationary Source Potential to Emit (lb/year)					
Permit Unit	NO _x	SO _x	PM ₁₀	CO	VOC
N-593-2-5	0	0	876	0	3,906
N-593-11-5					
N-593-37-0					
N-593-38-0					
N-593-39-0					
N-593-40-0					
N-593-41-0					
N-593-5-2	0	0	14,293	0	0
N-593-3-2	0	0	715	0	0
N-593-4-2	0	0	7	0	0
N-593-6-2	0	0	292	0	0
N-593-7-2	0	0	175	0	0
N-593-8-2	0	0	248	0	0
N-593-9-2	0	0	1	0	0
N-593-10-12	1,213,080	590,000	110,000	161,680	6,160
N-593-12-11				78,140	2,980
N-593-13-8				124,100	6,860
N-593-16-2	0	0	1	0	0
N-593-17-2	0	0	1	0	0
N-593-20-2	0	0	238	0	0
N-593-21-2	0	0	238	0	0
N-593-22-2	0	0	238	0	0
N-593-27-3	101	2	5	54	8
N-593-28-3	155	3	3	16	3
N-593-29-3	171	4	19	108	6
N-593-30-2	0	0	0	0	0
N-593-31-3	422	5	30	91	34
N-593-32-2	265	7	23	121	10
N-593-35-1	0	0	4,000	0	0
N-593-36-1	0	0	0	0	0
SSPE1	1,214,194	590,021	131,403	364,310	19,967

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.

Post-Project Stationary Source Potential to Emit (lb/year)					
Permit Unit	NO_x	SO_x	PM₁₀	CO	VOC
N-593-2-5	0	0	876	0	3,906
N-593-11-5					
N-593-37-0					
N-593-38-0					
N-593-39-0					
N-593-40-0					
N-593-41-0					
N-593-5-2	0	0	14,293	0	0
N-593-3-2	0	0	715	0	0
N-593-4-2	0	0	7	0	0
N-593-6-2	0	0	292	0	0
N-593-7-2	0	0	175	0	0
N-593-8-2	0	0	248	0	0
N-593-9-2	0	0	1	0	0
ATC N-593-10-14	1,213,080	131,400	110,000	161,680	6,160
ATC N-593-12-11		78,512		78,140	2,980
ATC N-593-13-10		111,690		124,100	6,860
N-593-16-2	0	0	1	0	0
N-593-17-2	0	0	1	0	0
N-593-20-2	0	0	238	0	0
N-593-21-2	0	0	238	0	0
N-593-22-2	0	0	238	0	0
N-593-27-3	101	2	5	54	8
N-593-28-3	155	3	3	16	3
N-593-29-3	171	4	19	108	6
N-593-30-2	0	0	0	0	0
N-593-31-3	422	5	30	91	34
N-593-32-2	265	7	23	121	10
N-593-35-1	0	0	4,000	0	0
N-593-36-1	0	0	0	0	0
ATC N-593-42-1	0	0	0	0	0
SSPE2	1,214,194	321,623	131,403	364,310	19,967

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 lb/year	Major Source Thresholds lb/year	Major Source?
NOx	1,214,194	50,000	Yes
SOx	321,623	140,000	Yes
PM ₁₀	131,403	140,000	No
CO	346,310	200,000	Yes
VOC	19,967	50,000	No

6. Baseline Emissions (BE)

The BE calculation (in lbs/year) is performed pollutant-by-pollutant for each emission unit to determine the amount 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. Major Modification

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.*"

As discussed in Section VII.C.5 above, the facility is a Major Stationary Source for NOx, SOx, and CO emissions; however, the District is in attainment for CO emissions. Therefore, a major modification cannot be triggered for CO emissions.

NOx Major Modification Determination

As stated above, the definition of Major Modification 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.*"

The applicants proposal involves the addition of a SOx control equipment, the replacement of the existing PM10 emission control equipment, and the addition of some reagent/trona handling equipment (PM₁₀ emissions only). The applicant's proposal does involve physical modifications or changes in the method of operation at this facility; however, these changes are limited to the SOx and PM10 control devices, and the reagent/trona handling equipment. None of this equipment directly affects the NOx emissions from the furnace. The NOx emissions created in the furnace simply pass through the PM10 and SOx control devices. Additionally, this proposal does not indirectly impact NOx emissions, as the only common parameter between NOx and SOx or PM10 emissions is process rate, which is not affected.

Since the modifications proposed in this project do not directly or indirectly affect NOx emissions, it is impossible for the proposed modifications to result in a significant increase in NOx emissions. Therefore, this project is not a Major Modification of NOx emissions.

SOx Major Modification Determination

This project involves the addition of a SOx emissions control device. Therefore, calculations must be performed to determine whether a major modification will be triggered for SOx emissions.

In order to determine whether the project is a Major Modification for SOx, it is necessary to calculate the Net Emissions Increase (NEI) for the project and compare that to the Major Modification for SOx, listed in District Rule 2201. The NEI will be calculated as follows:

$$\text{NEI} = \text{Post-Project Potential to Emit} - \text{Pre-Project Actual Emissions}$$

The facility has provided actual SOx emission rates for the previous two years of operation (12/1/07 through 11/30/09). The actual SOx emissions are shown below. Please refer to Appendix III for the data used to determine these emission rates.

Unit	12/1/07 to 11/30/08 SOx Emissions (lb/year)	12/1/08 to 11/30/09 SOx Emissions (lb/year)	Average Annual SOx Emissions (lb/year)
N-593-10	305,653	314,240	309,947
N-593-12	108,152	111,393	109,773
N-593-13	126,376	122,876	124,626
		Total	544,346

The Post-Project SOx emissions for the glass furnaces were shown earlier in this evaluation. The following table compares the Net Emissions Increase with the Major Modification threshold to determine if a Major Modification is triggered for SOx emissions.

Net Emissions Increase					
Pollutant	Project PE2 (lb/year)	Actual Emissions (lb/year)	Net Emissions Increase (lb/year)	Threshold (lb/year)	Major Modification?
SO _x	321,602	544,346	< 0	80,000	No

As shown above, this project does not trigger a Major Modification for SO_x emissions.

8. Federal Major Modification

As shown above, this project does not constitute a Major Modification. Therefore, in accordance with District Rule 2201, Section 3.17, this project does not constitute a Federal Major Modification and no further discussion is required.

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 VI.

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 will be equipped with operational CEMs for NO_x, SO_x, CO, O₂, and opacity. Provisions included in the operating permit are consistent with the requirements of this Rule. Compliance with the requirements of this Rule is anticipated.

N-593-10-14 and '-12-11, and '-13-9

The following conditions are proposed to comply with District Rule 1080 requirements:

- *The applicant shall install, maintain, and operate a continuous emissions monitoring system (CEMS) to measure stack gas NO_x, SO_x, CO, O₂ concentration and stack gas volumetric flow rate and shall meet the performance specification requirements in 40 CFR, Part 60, Appendix B, Performance Specifications 2, 3, and 4, or shall meet equivalent specifications established by mutual agreement of the District, the California Air Resources Board, and EPA. The CEM systems shall also be operated, maintained, and calibrated pursuant to the requirements of 40 CFR 60.7(c) and 40 CFR 60.13. [District Rules 1080, 2201, and 4354]*

- The applicant shall install, maintain, and operate a continuous opacity monitor (COM) and shall meet the performance specification requirements in 40 CFR Part 60, Appendix B, or shall meet equivalent specifications established by mutual consent of the District, California Air Resources Board, and EPA. [District Rules 1080, 2201, and 4101]
- 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 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 of the following items shall be maintained: the occurrence and duration of any malfunction, performance testing, calibrations, checks, adjustments, any periods during which the CEM is inoperative, and the CEM emission measurements. [District Rule 1080]
- Cylinder gas audits (CGAs) of continuous emission monitors shall be conducted quarterly, except during quarters in which relative 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]
- Any visible emission monitoring exceedance showing air contaminant discharged into the atmosphere for a period or periods aggregating more than three minutes in any one hour which is as dark as, or darker than, Ringelmann 1 or 20% opacity shall be reported by the operator to the APCO within 96 hours. [District Rule 1080]

- Any violation of an emission standard, as shown by the stack CEMS, shall be reported to the APCO within 96 hours of detection. [District Rule 1080]
- The operator shall notify the APCO no later than eight hours after the detection of a breakdown of the CEMS. The operator shall inform the APCO of the intent to shutdown the CEMS at least 24 hours prior to the event. [District Rule 1080]
- Permittee shall submit a written report 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 (averaging period used for data reporting shall correspond to the averaging period for each respective emission standard; corrective actions taken and preventive measures adopted; applicable time and date of each period during a 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 or when the CEMS has not been operative, repaired, or adjusted. [District Rule 1080]

N-593-42-1

There are no District 1080 requirements applicable to the trona receiving and storage operation.

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.

The requirements of this Rule will be included on the operating permits. Compliance with this Rule is expected.

N-593-10-14 and '-12-11, and '-13-9

The following conditions are proposed to comply with District Rule 1080 requirements:

- 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 Resource 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 useage 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 exceedance of 100 hours. [District Rule 1081]

N-593-42-1

There are no District 1081 requirements applicable to this unit.

Rule 2201 New and Modified Stationary Source Review Rule

A. Best Available Control Technology (BACT)

1. BACT Applicability

BACT requirements are triggered on a pollutant-by-pollutant basis and on an emissions unit-by-emissions unit basis for the following*:

- a. Any new emissions unit with a potential to emit exceeding two pounds per day,
- b. The relocation from one Stationary Source to another of an existing emissions unit with a potential to emit exceeding two pounds per day,
- c. Modifications to an existing emissions unit with a valid Permit to Operate resulting in an AIPE exceeding two pounds per day, and/or
- d. Any new or modified emissions unit, in a stationary source project, which results in a Major Modification.

*Except for CO emissions from a new or modified emissions unit at a Stationary Source with an SSPE2 of less than 200,000 pounds per year of CO.

As stated in 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 SOx emission controls and replace the existing PM10 emission controls.

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. 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 yer of VOC, or 15 tons per year of SO_x, or 15 tons per year of PM₁₀, or 50 tons/year of CO.

As demonstrated earlier in this evaluation, this project does not result in an increase in permitted emissions from the facility.

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

1. Offset Applicability

Pursuant to Section 4.5.3, offsets shall be triggered on a pollutant by pollutant basis and shall be required if the Post Project Stationary Source Potential to Emit (SSPE2) equals to or exceeds the offset threshold levels in Table 4-1 of Rule 2201.

The following table compares SSPE2 with the offset thresholds to determine if offsets will be triggered for this project.

Offset Determination (lb/year)					
	NO_x	SO_x	PM₁₀	CO	VOC
Post Project SSPE (SSPE2)	1,214,914	321,623	131,403	364,310	19,967
Offset Threshold	20,000	54,750	29,200	200,000	20,000
Offsets triggered?	Yes	Yes	Yes	Yes	No

2. Quantity of Offsets Required

As stated in 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 SOx emission controls and replace the existing PM10 emission controls.

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. 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 NOx, or 25 tons per yer of VOC, or 15 tons per year of SOx, or 15 tons per year of PM₁₀, or 50 tons/year of CO.

This project does not result in an increase in permitted emissions.

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 SSIPE 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 for SO_x and PM₁₀; therefore, public noticing for Major Modification purposes is not required.

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 with a PE greater than 100 lb/day associated with this project; therefore public noticing is not required for this project for Potential to Emit exceeding the 100 lb/day limit.

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	1,214,194	1,214,194	20,000 lb/year	No
SO _x	590,021	321,623	54,750 lb/year	No
PM ₁₀	131,403	131,403	29,200 lb/year	No
CO	364,310	364,310	200,000 lb/year	No
VOC	19,967	19,967	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	1,214,194	1,214,194	0	20,000 lb/year	No
SO _x	321,623	590,021	< 0	20,000 lb/year	No
PM ₁₀	131,403	131,403	0	20,000 lb/year	No
CO	364,310	364,310	0	20,000 lb/year	No
VOC	19,967	19,967	0	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 notice will not be required for this project.

D. Daily Emission Limits (DELs)

Daily Emissions Limitations (DELs) and other enforceable conditions are required by Section 3.15 to restrict a unit's maximum daily emissions, to a level at or below the emissions associated with the maximum design capacity. Per Sections 3.15.1 and 3.15.2, 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.

N-593-10-14

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

- *The glass pull rate shall not exceed 417 tons during any one day. [District Rules 2201 and 4354]*
- *The glass pull rate shall not exceed 146,000 tons during any 12 consecutive month period. [District NSR Rule]*
- *The weight percent of cullet per batch shall not be less than 17.5%. Batch weight distribution data shall be available for District inspection during normal operating hours. [District NSR Rule]*
- *NO_x emissions from the glass furnace, except during periods of start-up, shutdown, and idling, shall not exceed any of the following limits: 69.50 lb-NO_x/hr⁴ or 4.0 lb-NO_x/ton of glass pulled, based on a block 24-hour average. [District Rules 2201 and 4354]*

⁴ The hourly NO_x emission rate for this furnace is calculated using the daily emissions rate of 1,668.0 lb/day and assuming 24 hours/day operation of the furnace.

$$\text{Hourly NO}_x = 1668.0 \text{ lb-NO}_x/\text{day} \div 24 \text{ hr/day} = 69.50 \text{ lb-NO}_x/\text{hr}$$

- *SOx emissions from the glass furnace, except during periods of start-up, shutdown, and idling, shall not exceed any of the following limits: 15.64 lb-SOx/hr⁵ or 0.9 lb-SOx/ton of glass pulled, based on a 30-day rolling average. [District Rules 2201 and 4354]*
- *CO emissions from the glass furnace, except during periods of start-up, shutdown, and idling, shall not exceed any of the following limits: 300 ppmvd @ 8% O₂ or 1.0 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 any of the following limits: 20 ppmvd @ 8% O₂ or 0.25 lb-VOC/ton of glass pulled, based on a 3-hour rolling average. [District Rules 2201 and 4354]*
- *PM₁₀ emissions from the glass furnace, except during periods of start-up, shutdown, and idling, shall not exceed either of the following limits: 6.59 lb-PM₁₀/hr and 0.5 lb-PM₁₀/ton of glass pulled, based on a block 24-hour average. [District Rules 2201 and 4354]*
- *Particulate matter emissions shall not exceed 17.5 lb/hr. [40 CFR 52.233(g)]*
- *Daily combined emissions from furnaces N-593-10 (22-C), N-593-12 (22-A), and N-593-13 (22-B) shall not exceed any of the following limits: 3,392.2 lb-NO_x/day, 300.0 lb-PM₁₀/day, and 105.0 lb-filterable PM₁₀/day. [District NSR Rule and 40 CFR 52.233(g)]⁶*
- *Combined emissions from furnaces N-593-10 (22-C), N-593-12 (22-A), and N-593-13 (22-B) computed over a 12 consecutive month period shall not exceed either of the following limits: 606.540 tons-NO_x/year and 55 tons-PM₁₀/year. [District NSR Rule]⁷*
- *Start-up is defined as the period of time, after initial construction of 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 purposely allowed to cool from operating temperature and molten glass is removed*

⁵ The hourly SO_x emission rate for this furnace is calculated using the daily emission rate of 375.3 lb/day and assuming 24 hours/day operation of the furnace.

$$\text{Hourly SO}_x = 375.3 \text{ lb-SO}_x/\text{day} \div 24 \text{ hr/day} = 15.64 \text{ lb-SO}_x/\text{hr}$$

⁶ Note, the current permit lists a combined daily emission limit of 1,867.0 lb-SO_x/day; however, the combined potential to emit for these furnaces following the addition of the SO_x scrubber is 906.3 lb-SO_x/day. Therefore, existing combined SO_x emission limitation is obsolete and will be removed from the permits.

⁷ Note, the current permit limits the combined annual emissions from these furnaces to 295 tons-SO_x/year (590,000 lb-SO_x/year); however, the combined post-project potential to emit for the three furnaces after adding the SO_x scrubber is 321,606 lb-SO_x/year. Therefore, the existing combined SO_x emission limit is obsolete and will be removed from the permits.

from the tank for the purpose of a furnace rebuild. 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]

- *The throughput for each electrostatic precipitator dust silo shall not exceed 1.81 tons in any one day [District Rule 2201]*
- *PM10 emissions from each electrostatic precipitator dust silo shall not exceed 0.00034 lb/ton. [District Rule 2201]*

N-593-12-11

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

- *The glass pull rate shall not exceed 250 tons during any one day. [District Rules 2201 and 4354]*
- *The glass pull rate shall not exceed 87,235 tons during any 12 consecutive month period. [District NSR Rule]*
- *The weight percent of cullet per batch shall not be less than 13.6%. Batch weight distribution data shall be available for District inspection during normal operating hours. [District NSR Rule]*
- *NOx emissions from the glass furnace, except during periods of start-up, shutdown, and idling, shall not exceed any of the following limits: 41.67 lb-NOx/hr⁸ or 4.0 lb-NOx/ton of glass pulled, based on a block 24-hour average. [District Rules 2201 and 4354]*
- *SOx emissions from the glass furnace, except during periods of start-up, shutdown, and idling, shall not exceed any of the following limits: 9.38 lb-SOx/hr⁹ or 0.9 lb-SOx/ton of glass pulled, based on a 30-day rolling average. [District Rules 2201 and 4354]*
- *CO emissions from the glass furnace, except during periods of start-up, shutdown, and idling, shall not exceed any of the following limits: 300 ppmvd @ 8% O2 or 1.0 lb-CO/ton of glass pulled, based on a 3-hour rolling average. [District Rules 2201 and 4354]*

⁸ The hourly NOx emission rate for this furnace is calculated using the daily emissions rate of 1,000.0 lb/day and assuming 24 hours/day operation of the furnace.

$$\text{Hourly NOx} = 1,000.0 \text{ lb-NOx/day} \div 24 \text{ hr/day} = 41.67 \text{ lb-NOx/hr}$$

⁹ The hourly SOx emission rate for this furnace is calculated using the daily emission rate of 225.0 lb/day and assuming 24 hours/day operation of the furnace.

$$\text{Hourly SOx} = 225.0 \text{ lb-SOx/day} \div 24 \text{ hr/day} = 9.38 \text{ lb-SOx/hr}$$

- *VOC emissions from the glass furnace, except during periods of start-up, shutdown, and idling, shall not exceed any of the following limits: 20 ppmvd @ 8% O₂ or 0.25 lb-VOC/ton of glass pulled, based on a 3-hour rolling average. [District Rules 2201 and 4354]*
- *PM₁₀ emissions from the glass melting furnace, except during periods of start-up, shutdown, and idling, shall not exceed either of the following limits: 3.78 lb-PM₁₀/hr and 0.5 lb-PM₁₀/ton of glass pulled, based on a block 24-hour average. [District Rules 2201 and 4354]*
- *Daily combined emissions from furnaces N-593-10 (22-C), N-593-12 (22-A), and N-593-13 (22-B) shall not exceed any of the following limits: 3,392.2 lb-NO_x/day, 300.0 lb-PM₁₀/day, and 105.0 lb-filterable PM₁₀/day. [District NSR Rule and 40 CFR 52.233(g)]¹⁰*
- *Combined emissions from furnaces N-593-10 (22-C), N-593-12 (22-A), and N-593-13 (22-B) computed over a 12 consecutive month period shall not exceed either of the following limits: 606.540 tons-NO_x/year and 55 tons-PM₁₀/year. [District NSR Rule]¹¹*
- *Start-up is defined as the period of time, after initial construction of 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 purposely allowed to cool from operating temperature and molten glass is removed from the tank for the purpose of a furnace rebuild. 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]*
- *The throughput for each electrostatic precipitator dust silo shall not exceed 1.23 tons in any one day [District Rule 2201]*
- *PM₁₀ emissions from each electrostatic precipitator dust silo shall not exceed 0.00034 lb/ton. [District Rule 2201]*

N-593-13-10

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

- *The glass pull rate shall not exceed 340 tons during any one day. [District Rules 2201 and 4354]*

¹⁰ Note, the current permit lists a combined daily emission limit of 1,867.0 lb-SO_x/day; however, the combined potential to emit for these furnaces following the addition of the SO_x scrubber is 906.3 lb-SO_x/day. Therefore, existing combined SO_x emission limitation is obsolete and will be removed from the permits.

¹¹ Note, the current permit limits the combined annual emissions from these furnaces to 295 tons-SO_x/year (590,000 lb-SO_x/year); however, the combined post-project potential to emit for the three furnaces after adding the SO_x scrubber is 321,606 lb-SO_x/year. Therefore, the existing combined SO_x emission limit is obsolete and will be removed from the permits.

- *The glass pull rate shall not exceed 124,100 tons during any 12 consecutive month period. [District NSR Rule]*
- *The weight percent of cullet per batch shall not be less than 13.6%. Batch weight distribution data shall be available for District inspection during normal operating hours. [District NSR Rule]*
- *NOx emissions from the glass furnace, except during periods of start-up, shutdown, and idling, shall not exceed any of the following limits: 56.67 lb-NOx/hr¹² or 4.0 lb-NOx/ton of glass pulled, based on a block 24-hour average. [District Rules 2201 and 4354]*
- *SOx emissions from the glass furnace, except during periods of start-up, shutdown, and idling, shall not exceed any of the following limits: 12.75 lb-SOx/hr¹³ or 0.9 lb-SOx/ton of glass pulled, based on a 30-day rolling average. [District Rules 2201 and 4354]*
- *CO emissions from the glass furnace, except during periods of start-up, shutdown, and idling, shall not exceed any of the following limits: 300 ppmvd @ 8% O₂ or 1.0 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 any of the following limits: 20 ppmvd @ 8% O₂ or 0.25 lb-VOC/ton of glass pulled, based on a 3-hour rolling average. [District Rules 2201 and 4354]*
- *PM₁₀ emissions from the glass melting furnace, except during periods of start-up, shutdown, and idling, shall not exceed either of the following limits: 5.38 lb-PM₁₀/hr and 0.5 lb-PM₁₀/ton of glass pulled, based on a block 24-hour average. [District Rules 2201 and 4354]*
- *Daily combined emissions from furnaces N-593-10 (22-C), N-593-12 (22-A), and N-593-13 (22-B) shall not exceed any of the following limits: 3,392.2 lb-NOx/day, 300.0 lb-PM₁₀/day, and 105.0 lb-filterable PM₁₀/day. [District NSR Rule and 40 CFR 52.233(g)]¹⁴*

¹² The hourly NOx emission rate for this furnace is calculated using the daily emissions rate of 1,360.0 lb/day and assuming 24 hours/day operation of the furnace.

$$\text{Hourly NOx} = 1,360.0 \text{ lb-NOx/day} \div 24 \text{ hr/day} = 56.67 \text{ lb-NOx/hr}$$

¹³ The hourly SOx emission rate for this furnace is calculated using the daily emission rate of 306.0 lb/day and assuming 24 hours/day operation of the furnace.

$$\text{Hourly SOx} = 306.0 \text{ lb-SOx/day} \div 24 \text{ hr/day} = 12.75 \text{ lb-SOx/hr}$$

¹⁴ Note, the current permit lists a combined daily emission limit of 1,867.0 lb-SOx/day; however, the combined potential to emit for these furnaces following the addition of the SOx scrubber is 906.3 lb-SOx/day. Therefore, existing combined SOx emission limitation is obsolete and will be removed from the permits.

- *Combined emissions from furnaces N-593-10 (22-C), N-593-12 (22-A), and N-593-13 (22-B) computed over a 12 consecutive month period shall not exceed either of the following limits: 606.540 tons-NOx/year and 55 tons-PM10/year. [District NSR Rule]¹⁵*
- *Start-up is defined as the period of time, after initial construction of 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 purposely allowed to cool from operating temperature and molten glass is removed from the tank for the purpose of a furnace rebuild. 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]*
- *The throughput for each electrostatic precipitator dust silo shall not exceed 1.64 tons in any one day [District Rule 2201]*
- *PM10 emissions from each electrostatic precipitator dust silo shall not exceed 0.00034 lb/ton. [District Rule 2201]*

N-593-42-1

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

- *The quantity of trona/dry reagent received shall not exceed 4.97 tons in any one day [District Rule 2201]*
- *PM10 emissions from the trona/dry reagent receiving operation shall not exceed 0.00034 lb/ton. [District Rule 2201]*

E. Compliance Assurance

1. Source Testing

Glass Furnaces (N-593-10, '-12, and '-13)

Source testing is required annually for NOx, SOx, CO, PM₁₀, and VOC emissions for the glass furnaces. The following condition will be included on each permit:

¹⁵ Note, the current permit limits the combined annual emissions from these furnaces to 295 tons-SOx/year (590,000 lb-SOx/year); however, the combined post-project potential to emit for the three furnaces after adding the SOx scrubber is 321,606 lb-SOx/year. Therefore, the existing combined SOx emission limit is obsolete and will be removed from the permits.

- *Annual performance testing shall be conducted for VOC (ppmv and lb/ton of glass pulled), CO (ppmv and lb/ton of glass pulled), PM10 (lb/ton of glass pulled and lb/hr), SOx (lb/ton of glass pulled and lb/hr), and NOx (lb/ton of glass pulled) emissions at least once every calendar year. To qualify as an annual performance test, the test date shall be at least 6 months after, and not more than 18 months after the initial and the previous annual performance test. [District NSR Rule, Rule 1070, Rule 4354, 6.4, and 40 CFR 52.233(g)]*

Additionally, initial testing for NOx, SOx, CO, PM₁₀, and VOC emissions from the glass furnaces will be required within 60 days of startup, to verify that the individual furnaces are meeting the emission limits. The following condition will be included on each permit.

- *Initial performance testing shall be conducted for VOC (ppmv and lb/ton of glass pulled), CO (ppmv and lb/ton of glass pulled), PM10 (lb/ton of glass pulled and lb/hr), SOx (lb/ton of glass pulled and lb/hr), and NOx (lb/ton of glass pulled) emissions within 60 days of startup. [District Rule 2201]*

Electrostatic Precipitator Dust Silos and Trona/Dry Reagent Receiving Operation (N-593-10, '-12, '-13, and '-42)

Pursuant to District Policy APR 1705, source testing is not required to demonstrate compliance with Rule 2201 for units served by a baghouse with emissions less than 30 pounds of PM10 per day. The daily emission rate for each of the electrostatic precipitator dust storage silos and for the trona/dry reagent receiving operation are each less than 30 pounds of PM10 per day; therefore, performance testing is not required.

2. Monitoring

Glass Furnaces (N-593-10, '-12, and '-13)

Each glass furnace will be equipped with a CEMS for NOx, CO, and SOx emissions. Further information on the requirements for the CEMS are included in the District Rule 1080 and District Rule 4354 sections of this document.

In addition to the NOx, CO, and SOx, District Rule 4354 requires monitoring of VOC and PM₁₀ emissions. The applicant has chosen to monitor these pollutants using a parametric monitoring system. The details on the VOC and PM₁₀ emission monitoring proposal is described in Appendix IV of this document.

**Electrostatic Precipitator Dust Silos and Trona/Dry Reagent Receiving Operation
(N-593-10, '-12, '-13, and '-42)**

Each of the electrostatic precipitator dust silos and the trona/dry reagent silo is equipped with a bin vent filter and a differential operating pressure gauge. The following monitoring requirements will be included on each permit:

- *Each bin vent filter shall be equipped with a pressure differential gauge to indicate the pressure drop across the bags. The gauge shall be maintained in good working condition at all times and shall be located in an easily accessible location. [District Rule 2201]*
- *The differential pressure gauge reading range shall be established per manufacturer's recommendation at the time of the startup inspection. [District Rule 2201]*
- *Differential operating pressure shall be monitored and recorded on each day that the unit operates. [District Rule 2201]*

3. Recordkeeping

Glass Furnaces (N-593-10, '-12, and '-13)

The following recordkeeping requirements will be placed on each permit:

- *The applicant shall maintain accurate records of the time, date, cause (e.g. electrostatic precipitator maintenance, furnace startup, or furnace idle), and duration electrostatic precipitator is not in operation and result of any visible emissions testing during the period. Records shall be made available for District inspection upon request. [District Rule 1070]*
- *The permittee shall maintain daily records of the total hours of operation, type and quantity of fuel used, quantity of glass pulled, the NOx emission rate (in lb/ton of glass pulled), the CO emission rate (in lb/ton of glass pulled), and the SOx emission rate (in lb/ton of glass pulled). The permittee shall also maintain records of source tests, the acceptable range for each approved key system operating parameter as established by source testing, all instances of maintenance and repair, any malfunction, and records of all periods of idling, startup, or shutdown. All records shall be maintained on the premises for a period of five years and shall be made available for District inspection upon request. [District Rules 2201 and 4354]*
- *Permittee shall keep a record of the combined daily NOx emissions, in pounds, for furnaces N-593-10 (22-C), N-593-12 (22-A) and N-593-13 (22-C). [District Rule 2201]*
- *Permittee shall keep a record of the combined rolling 12-month NOx and PM10 emissions for furnaces N-593-10 (22-C), N-593-12 (22-A), and N-593-13 (22-C). This record shall be updated on a monthly basis. [District Rule 2201]*

- *Permittee shall keep a record of the combined daily NOx emissions, in pounds, for furnaces N-593-10 (22-C), N-593-12 (22-A) and N-593-13 (22-C). [District Rule 2201]*
- *Permittee shall keep a record of the combined rolling 12-month NOx emissions for furnaces N-593-10 (22-C), N-593-12 (22-A), and N-593-13 (22-C). This record shall be updated on a monthly basis. [District Rule 2201]*

Electrostatic Precipitator Dust Silos (N-593-10, '-12, '-13)

The electrostatic precipitator dust silos are an enclosed system and daily recordkeeping of the dust throughput is not feasible. Therefore, only the following requirement will be included on each permit:

- *{3464} Records of all maintenance of the baghouse, including all change outs of filter media, shall be maintained. [District Rule 2201]*

Trona/Dry Reagent Receiving Operation, and '-42)

The following conditions will be included on this permit:

- *{3464} Records of all maintenance of the baghouse, including all change outs of filter media, shall be maintained. [District Rule 2201]*
- *Permittee shall keep a record of the daily quantity of trona/dry reagent received, in tons. [District Rule 2201]*

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

Air Products Manufacturing Inc. is a Major Source facility and currently has a Title V permit. Therefore, this rule is applicable to this facility. The District has determined that the proposed project constitutes a Minor Modification to the Title V permit.

As discussed above, 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 construct/operate under the ATC upon submittal of the the Title V administrative amendment/minor modification 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.

Each 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 previous ATC project for the furnaces, project N-1030430, that a modification has not occurred since June 15, 1979.

Since these furnaces were 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 permits for the glass furnaces contain a permit shield from the requirements of Subpart CC and this permit shield will remain on the new ATC's.

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. Each furnace is currently prohibited from using arsenic as a raw material by a permit condition and this permit condition will remain on each glass furnace permit; therefore, Subpart N requirements will not be applicable to these furnaces.

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

This subpart is applicable to glass furnaces that manufacture container glass containing metal HAP as raw materials. Currently, only furnace 22A (N-593-12) manufactures glass containing metal HAP. Compliance with this subpart was required by December 28, 2009. Emission limits for this subpart are listed in Table 1. Table 1 states that the glass furnaces subject to Subpart SSSSSS requirements must meet either a limit of 0.2 lb-PM/ton of glass produced on a three hour block average, or meet a metal HAP limit of 0.02 lb/ton of glass produced on a three hour block average. Initial source testing was conducted on furnace 22A to determine the metal HAP emission rate. The metal HAP emission rate was determined to be 0.00085 lb/ton of glass produced, demonstrating initial compliance with the metal HAP limit of 0.02 lb/ton.

Additionally, Subpart SSSSSS contains monitoring, recordkeeping, and notification requirements. Compliance with all the requirements of Subpart SSSSSS is expected. Please note, implementation and enforcement of Subpart SSSSSS has not been delegated to the District; therefore, implementation and enforcement of Subpart SSSSSS is currently conducted by US EPA. Conditions enforcing compliance with Subpart SSSSSS will not be placed on the permit, since the District has not been delegated the authority to enforce these requirements.

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 each 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. 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]*

In addition, District Policy SSP 1005 limits visible emissions from processes served by a baghouse or fabric filter to 5% opacity. The following condition will be placed on each permit:

- Visible emissions from the exhaust of each bin vent filter shall not equal or exceed 5% opacity for a period or periods aggregating more than three minutes in any one hour. [District Rule 2201]

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.

A permit condition will be listed on each Authority to Construct permit as follows:

- *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.

The following table outlines the results from the Health Risk Assessment:

RMR Summary (For Full Results See Appendix V)						
Categories	Glass Furnace (10-14)	Glass Furnace (12-12)	Glass Furnace (13-10)	Receiving Silo (42-1)	Project Totals	Facility Totals
Prioritization Score	0.33	0.19	0.28	0.0	0.8	>1
Acute Hazard Index	0.005	0.003	0.147	0.00	0.155	0.155
Chronic Hazard Index	0.01	0.01	0.01	0.0	0.05	0.05
Maximum individual Cancer Risk (10^{-6})	1.08	0.65	6.83	0.0	8.56	8.56
T-BACT Required?	Yes	No	Yes	No		
Special Permit Conditions?	Yes	Yes	Yes	No		

As shown above, Toxics Best Available Control Technology (T-BACT) is required for hexavalent chromium emissions (PM₁₀) for units N-593-10-14 and N-593-13-10. The applicant has proposed the use of an electrostatic precipitator for PM₁₀ control. Pursuant to the article "Electrostatic Precipitator Efficiently Captures Most Toxic Trace Metals" published by the Environmental Research Corporation in 1996 (see Appendix VII), the chromium control for a precipitator is nearly 100%. A chromium control efficiency of 99% was assumed to be conservative for an electrostatic precipitator. An electrostatic precipitator is the most effective chromium control that can be utilized for this class and category of source. Therefore, T-BACT requirements have been satisfied.

The following special conditions will be included on Authorities to Construct N-593-10-14, '12-11, and '13-10.

- {1898} The exhaust stack shall vent vertically upward. The vertical exhaust flow shall not be impeded by a rain cap, roof overhang, or any other obstruction. [District Rule 4102]
- The facility shall not use commercial arsenic as a raw material in the product process. [District Rule 4102 and 40 CFR 61 Subpart N]

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 all of the source operations associated with this project.

N-593-10-14

Glass Furnace 22-C

Hourly PM emission rate: 6.57 lb-PM/hr (Assuming all PM emitted is PM₁₀)

Glass Furnace Exhaust Flow Rate: 42,030 CFM (Per Manufacturer)

$$\text{GrainLoading} = \frac{6.57 \frac{\text{lb-PM}}{\text{hr}} \times 7000 \frac{\text{grains}}{\text{lb}}}{42,030 \text{CFM} \times 60 \frac{\text{min}}{\text{hr}}}$$

Grain Loading = 0.018 grains/dscf

ESP Dust Silos

The following analysis applies to each of the two new ESP dust silos served by bin vent filters and assumes that all particulate matter emitted is PM₁₀.

Daily PM emission rate = 0.0006 lb-PM/day

The airflow rate for this operation is not known. The minimum airflow rate will be calculated by determining the volume of air displaced by the material loaded into the silo. 1.81 tons of material are loaded into the silo per day. Much of this material is trona/dry reagent that was injected into the SO_x scrubber and captured by the electrostatic precipitator. Pursuant to the MSDS sheet for the trona, trona has a density of 49 lb/cubic feet. The minimum airflow rate is then:

Minimum Airflow Rate = Volume of Material Loaded into Silo

Volume of Material Loaded into Silo = 1.81 tons/day x 1 ft³/49 lb x 2000 lb/ton

Minimum Airflow Rate = 73.9 SCF/day

$$\text{GrainLoading} = \frac{0.0006 \frac{\text{lb-PM}}{\text{day}} \times 7000 \frac{\text{grains}}{\text{lb}}}{73.9 \frac{\text{SCF}}{\text{Day}}}$$

Grain Loading = 0.06 grains/dscf

N-593-12-11

Glass Furnace 22-A

Hourly PM emission rate: 3.78 lb-PM/hr (Assuming all PM emitted is PM₁₀)

Glass Furnace Exhaust Flow Rate: 24,480 CFM (Per Manufacturer)

$$\text{GrainLoading} = \frac{3.78 \frac{\text{lb-PM}}{\text{hr}} \times 7000 \frac{\text{grains}}{\text{lb}}}{24,480 \text{CFM} \times 60 \frac{\text{min}}{\text{hr}}}$$

Grain Loading = 0.018 grains/dscf

ESP Dust Silos

The following analysis applies to each of the two new ESP dust silos served by bin vent filters and assumes that all particulate matter emitted is PM₁₀.

Daily PM emission rate = 0.0004 lb-PM₁₀/day

The airflow rate for this operation is not known. The minimum airflow rate will be calculated by determining the volume of air displaced by the material loaded into the silo. 1.23 tons of material are loaded into the silo per day. Much of this material is trona/dry reagent that was injected into the SOx scrubber and captured by the electrostatic precipitator. Pursuant to the MSDS sheet for the trona, trona has a density of 49 lb/cubic feet. The minimum airflow rate is then:

Minimum Airflow Rate = Volume of Material Loaded into Silo

Volume of Material Loaded into Silo = 1.23 tons/day x 1 ft³/49 lb x 2000 lb/ton

Minimum Airflow Rate = 50.2 SCF/day

$$\text{GrainLoading} = \frac{0.0004 \frac{\text{lb-PM}}{\text{day}} \times 7000 \frac{\text{grains}}{\text{lb}}}{50.2 \frac{\text{SCF}}{\text{Day}}}$$

Grain Loading = 0.06 grains/dscf

N-593-13-10

Glass Furnace 22-A

Hourly PM emission rate: 3.78 lb-PM/hr (Assuming all PM emitted is PM₁₀)

Glass Furnace Exhaust Flow Rate: 24,480 CFM (Per Manufacturer)

$$\text{GrainLoading} = \frac{5.38 \frac{\text{lb-PM}}{\text{hr}} \times 7000 \frac{\text{grains}}{\text{lb}}}{45,270 \text{CFM} \times 60 \frac{\text{min}}{\text{hr}}}$$

Grain Loading = 0.014 grains/dscf

ESP Dust Silos

The following analysis applies to each of the two new ESP dust silos served by bin vent filters and assumes that all particulate matter emitted is PM₁₀.

Daily PM emission rate = 0.0006 lb-PM/day

The airflow rate for this operation is not known. The minimum airflow rate will be calculated by determining the volume of air displaced by the material loaded into the silo. 1.64 tons of material are loaded into the silo per day. Much of this material is trona/dry reagent that was injected into the SO_x scrubber and captured by the electrostatic precipitator. Pursuant to the MSDS sheet for the trona, trona has a density of 49 lb/cubic feet. The minimum airflow rate is then:

Minimum Airflow Rate = Volume of Material Loaded into Silo
Volume of Material Loaded into Silo = 1.64 tons/day x 1 ft³/49 lb x 2000 lb/ton
Minimum Airflow Rate = 66.9 SCF/day

$$\text{GrainLoading} = \frac{0.0006 \frac{\text{lb-PM}}{\text{day}} \times 7000 \frac{\text{grains}}{\text{lb}}}{66.9 \frac{\text{SCF}}{\text{Day}}}$$

Grain Loading = 0.06 grains/dscf

C-593-42-0

Trona/Dry Reagent Storage Silo

The following analysis applies to the trona/dry reagent storage silo served by a bin vent filter and assumes that all particulate matter emitted is PM₁₀.

Daily PM emission rate = 0.0017 lb-PM/day

The airflow rate for this operation is not known. The minimum airflow rate will be calculated by determining the volume of air that must be displaced by the material loaded into the silo. 4.97 tons of material are loaded into the silo per day. All of this material is trona/dry reagent. Pursuant to the MSDS sheet for the trona, trona has a density of 49 lb/cubic feet. The minimum airflow rate is then:

Minimum Airflow Rate = Volume of Material Loaded into Silo
Volume of Material Loaded into Silo = 4.97 tons/day x 1 ft³/49 lb x 2000 lb/ton
Minimum Airflow Rate = 202.9 SCF/day

$$\text{GrainLoading} = \frac{0.0017 \frac{\text{lb-PM}}{\text{day}} \times 7000 \frac{\text{grains}}{\text{lb}}}{202.9 \frac{\text{SCF}}{\text{Day}}}$$

Grain Loading = 0.06 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

N-593-10-14

Glass Furnace 22-C

Hourly PM emission rate: 6.57 lb-PM/hr (Assuming all PM emitted is PM₁₀)
Daily Throughput: 416 tons/day
Hourly Throughput = 416 tons/day ÷ 24 hr/day = 17.3 tons/hr

$$E \text{ (lb/hr)} = 3.59 \times (17.3 \text{ tons/hr})^{0.62}$$
$$E \text{ (lb/hr)} = 21.02 \text{ lb-PM/hr}$$

Since the actual hourly PM emission rate of 6.57 lb-PM/hr is less than the allowable PM emission rate of 21.02 lb-PM/hr, compliance with District Rule 4202 is expected.

ESP Dust Silos

Daily PM emission rate: 0.0006 lb-PM/day (Assuming all PM emitted is PM₁₀)
Hourly PM emission rate = 0.0006 lb-PM/day ÷ 24 hr/day = 0.000025 lb-PM/hr
Daily Throughput: 1.81 tons/day
Hourly Throughput = 1.81 tons/day ÷ 24 hr/day = 0.075 tons/hr

$$E(\text{lb/hr}) = 3.59 \times (0.075 \text{ tons/hr})^{0.62}$$

$$E(\text{lb/hr}) = 0.72 \text{ lb-PM/hr}$$

Since the actual hourly PM emission rate of 0.000025 lb-PM/hr is less than the allowable PM emission rate of 0.72 lb-PM/hr, compliance with District Rule 4202 is expected.

N-593-12-11

Glass Furnace 22-A

Hourly PM emission rate: 3.78 lb-PM/hr (Assuming all PM emitted is PM₁₀)
Daily Throughput: 239 tons/day
Hourly Throughput = 239 tons/day ÷ 24 hr/day = 10.0 tons/hr

$$E(\text{lb/hr}) = 3.59 \times (10.0 \text{ tons/hr})^{0.62}$$

$$E(\text{lb/hr}) = 14.97 \text{ lb-PM/hr}$$

Since the actual hourly PM emission rate of 3.78 lb-PM/hr is less than the allowable PM emission rate of 14.97 lb-PM/hr, compliance with District Rule 4202 is expected.

ESP Dust Silos

Daily PM emission rate: 0.0004 lb-PM/day (Assuming all PM emitted is PM₁₀)
Hourly PM emission rate = 0.0004 lb-PM/day ÷ 24 hr/day = 0.000017 lb-PM/hr
Daily Throughput: 1.23 tons/day
Hourly Throughput = 1.23 tons/day ÷ 24 hr/day = 0.05 tons/hr

$$E(\text{lb/hr}) = 3.59 \times (0.05 \text{ tons/hr})^{0.62}$$

$$E(\text{lb/hr}) = 0.56 \text{ lb-PM/hr}$$

Since the actual hourly PM emission rate of 0.000017 lb-PM/hr is less than the allowable PM emission rate of 0.56 lb-PM/hr, compliance with District Rule 4202 is expected.

N-593-13-10

Glass Furnace 22-B

Hourly PM emission rate: 5.38 lb-PM/hr (Assuming all PM emitted is PM₁₀)

Daily Throughput: 340 tons/day

Hourly Throughput = 340 tons/day ÷ 24 hr/day = 14.2 tons/hr

$$E(\text{lb/hr}) = 3.59 \times (14.2 \text{ tons/hr})^{0.62}$$

$$E(\text{lb/hr}) = 18.60 \text{ lb-PM/hr}$$

Since the actual hourly PM emission rate of 5.38 lb-PM/hr is less than the allowable PM emission rate of 18.60 lb-PM/hr, compliance with District Rule 4202 is expected.

ESP Dust Silos

Daily PM emission rate: 0.0006 lb-PM/day (Assuming all PM emitted is PM₁₀)

Hourly PM emission rate = 0.0006 lb-PM/day ÷ 24 hr/day = 0.000025 lb-PM/hr

Daily Throughput: 1.64 tons/day

Hourly Throughput = 1.64 tons/day ÷ 24 hr/day = 0.068 tons/hr

$$E(\text{lb/hr}) = 3.59 \times (0.068 \text{ tons/hr})^{0.62}$$

$$E(\text{lb/hr}) = 0.68 \text{ lb-PM/hr}$$

Since the actual hourly PM emission rate of 0.000025 lb-PM/hr is less than the allowable PM emission rate of 0.68 lb-PM/hr, compliance with District Rule 4202 is expected.

N-593-42-1

Trona/Dry Reagent Silo

Daily PM emission rate: 0.0017 lb-PM/day (Assuming all PM emitted is PM₁₀)

Hourly PM emission rate = 0.0017 lb-PM/day ÷ 24 hr/day = 0.000071 lb-PM/hr

Daily Throughput: 4.97 tons/day

Hourly Throughput = 4.97 tons/day ÷ 24 hr/day = 0.21 tons/hr

$$E(\text{lb/hr}) = 3.59 \times (0.21 \text{ tons/hr})^{0.62}$$

$$E(\text{lb/hr}) = 1.36 \text{ lb-PM/hr}$$

Since the actual hourly PM emission rate of 0.000071 lb-PM/hr is less than the allowable PM emission rate of 1.36 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 furnaces are direct-fired units and do not produce heat or power by indirect heat transfer. Therefore, the requirements of District Rule 4301 are not applicable to the glass melting furnaces.

District Rule 4354 Glass Melting Furnaces

This rule is applicable to any glass melting furnace. Each of the three glass melting furnaces in this project are therefore subject to District Rule 4354 requirements.

Section 5.1: NO_x Emission Limits

Section 5.1.1 of this rule lists Tier 2 and Tier 3 NO_x emission requirements for container glass manufacturing operations. Pursuant to Section 7.1 of this rule, each of the glass furnaces must be in full compliance with the Tier 3 NO_x emissions limit of 1.5 lb-NO_x/ton of glass pulled by January 1, 2014; therefore, the Tier 3 NO_x emission limit is not yet applicable. The Tier 2 NO_x emissions limit of 4.0 lb/ton of glass pulled, on a block 24-hour average, is currently applicable to each of the furnaces. Each furnace currently meets the Tier 2 NO_x limit; therefore, compliance is expected.

Section 5.2: CO and VOC Emission Limits

Section 5.2.1 of this rule lists CO and VOC emission limits for the oxygen assisted container glass manufacturing operations. The applicable emission limits are: 1.0 lb-CO/ton of glass pulled and 0.25 lb-VOC/ton of glass pulled, each on a rolling three hour average. Each furnace currently meets the CO and VOC emission limits; therefore, compliance is expected.

Section 5.3: SO_x Emission Limits

Section 5.3.2 of this rule lists SO_x emission limitations. Effective January 1, 2011, each furnace must meet a SO_x emissions limit of 0.9 lb-SO_x/ton of glass produced, on a 30-day rolling average. This proposal is to modify the control systems to meet the 0.9 lb-SO_x/ton of glass produced limit; therefore, compliance is expected.

Section 5.4: PM₁₀ emission limits

Section 5.4.1 of this rule lists PM₁₀ emission limitations. Effective on January 1, 2011, each container glass furnace must meet a PM₁₀ emissions limit of 0.5 lb-PM₁₀/ton of glass pulled on a block 24-hour average. The modified control system will meet the 0.5 lb-PM₁₀/ton of glass pulled; therefore, compliance is expected.

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. This proposal does not involve rebuilding the furnace, nor does it involve shutting down and restarting the furnace. The following condition will be included on each glass furnace Authority to Construct Permit:

- *During startup, the permittee shall comply with the requirements of Section 5.2 of District Rule 4354. [District Rule 4354]*

Section 5.6: Shutdown

Section 5.6 lists shutdown requirements for glass furnace operations. The following conditions will be included on each glass furnace Authority to Construct Permit:

- *The duration of shutdown of the furnace, as measured from the time the furnace operations drop below the idle threshold specified in District Rule 4354 to when all emissions from the furnace cease, shall not exceed 20 days. [District Rule 4354]*
- *The emission control system shall be in operation whenever technologically feasible during shutdown to minimize emissions. [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.

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.

Each furnace currently meets the idling emission requirements; therefore, continued compliance is expected. The following conditions will be included on each glass furnace Authority to Construct permit:

- *During periods when the furnace is in idle state, the glass throughput shall not exceed 50 tons per day. [District NSR Rule]*
- *The emission control system shall be in operation whenever technologically feasible during furnace idling to minimize emissions. [District Rule 4354]*

- *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 5.8: Compliance Determination

Section 5.8 states that any source testing result, CEMS, or alternate monitoring method averaged value exceeding the applicable emission limits in Section 5.1, Section 5.2, Section 5.3, or Section 5.4 shall constitute a violation of this rule.

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 each furnace and compliance with this requirement is expected.

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. The applicant is proposing the use of a CO CEMS on each furnace and compliance with this requirement is expected.

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, provided it meets the requirements of Sections 5.9.2.3.1 through 5.9.2.3.4. Owens Brockway has proposed an alternate monitoring scheme for VOC emissions. The details of the proposed VOC alternate monitoring scheme are included in Appendix IV of this document. Compliance with this requirement is expected.

Section 5.9.3 comes into effect on and after January 1, 2011. Section 5.9.3.1 requires each furnace, subject to Section 5.3, to implement a SO_x CEMS that meets the requirements of Section 6.6.1 and that is approved, in writing, by the APCO and EPA. The applicant is proposing the use of a SO_x CEMS on each furnace and compliance with this requirements is expected.

Section 5.9.4 comes into effect on and after January 1, 2011. Section 5.9.4.1 requires the operators to propose key system operating parameter(s) and frequency of monitoring and recording, as follows:

- 5.9.4.1.1: The parametric monitoring must meet the requirements of Section 6.6.2.
- 5.9.4.1.2: The operator shall obtain approval of the APCO and EPA for the specific key system operating parameter(s), monitoring frequency, and recording frequency used by the operator to monitor PM₁₀ emissions.
- 5.9.4.1.3: The operator shall monitor approved key system operating parameter(s), monitoring frequency, and recording frequency to ensure compliance with the emission limit(s) during periods of emission-producing activities.
- 5.9.4.1.4: Acceptable range(s) for the key system operating parameter(s) shall be demonstrated through a source test.

Section 5.9.2 states that in lieu of parametric monitoring, the operator may elect to implement a PM10 CEMS that meets the requirements of Section 6.6.1, and that is approved by the APCO and EPA.

The applicant is proposing parametric monitoring for PM10. The details of the proposed parametric monitoring scheme is included in Appendix IV of this evaluation.

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 current permits each include provisions allowing for maintenance of the existing add-on controls; however, the current provisions do not include any hour limitations; therefore, the 144 hour limit will be added to each permit. The following conditions will be included on each glass furnace Authority to Construct permit to allow for routine maintenance:

- *The exhaust from the glass melting furnace shall be vented through an operational SOx scrubber and electrostatic precipitator, except during periods of furnace startup (when technologically infeasible), furnace idle (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 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. This capacity will be listed on the each furnace permit and compliance with this requirement is expected.

Section 6.2: Operation Records

Section 6.2 lists recordkeeping requirements that apply through December 31, 2010. The applicant's proposal is expected to be implemented at the end of December 2010. Therefore, the applicant is proposing to comply with the new operation recordkeeping requirements listed in Section 6.3, which are applicable on and after January 1, 2011. The recordkeeping requirements of Section 6.3 are each equivalent or more stringent than the requirements of Section 6.2, thus compliance is expected.

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 each glass furnace Authority to Construct permit:

- *The permittee shall maintain daily records of the total hours of operation, type and quantity of fuel used, quantity of glass pulled, the NO_x emission rate (in lb/ton of glass pulled), the CO emission rate (in lb/ton of glass pulled), and the SO_x emission rate (in lb/ton of glass pulled). The permittee shall also maintain records of source tests, the acceptable range for each approved key system operating parameter as established by source testing, all instances of maintenance and repair, any malfunction, and records of all periods of idling, startup, or shutdown. All records shall be maintained on the premises for a period of at least five years and shall be made available for District inspection upon request. [District Rules 220 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.

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. Therefore, compliance is expected.

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.

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.

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 each glass furnace Authority to Construct permit:

- *Furnace conditions during source testing shall be representative of normal operations, with a glass production rate equal to or greater than 60 percent of the permitted glass production capacity. The source test may be conducted at a glass production rate lower than 60 percent of the permitted glass production capacity, provided that the permittee demonstrates that the proposed alternative glass production rate is representative of normal operations and the proposed alternative glass production rate is approved by the APCO in writing. [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.

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.

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.

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.

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	<p>EPA Method 202 with the following procedures:</p> <ol style="list-style-type: none"> 1. Purge the impinger with dry nitrogen for one hour. The one hour purge with dry nitrogen must be performed as soon as possible after the final leak check of the system. 2. Neutralize the inorganic portion to a pH of 7.0. Use the procedure, "Determination of NH4 Retained in Sample by Titration" described in Method 202 to neutralize sulfuric acid. Neutralizing the inorganic portion to a pH of 7.0 determines the un-neutralized acid content of the sample without over-correcting the amount of neutralized sulfate in the inorganic portion. 3. Evaporate the last 1 ml of the inorganic fraction by air drying following evaporation of the bulk of the impinger water in a 105 degrees C oven as described in the first sentence of the Method 202 section titled "Inorganic Fraction Weight Determination"

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 NO_x, CO, and SO_x CEMS are 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 VOC 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 each glass furnace 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. Each of the furnaces 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 each glass furnace is: 8578 dscf/MMBtu (EPA F-Factor, Natural Gas)

N-593-10-14

Glass Furnace 22-C

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

$$\text{SO}_x = (375.3 \text{ lb/day} \div 24 \text{ hr/day}) \div 60 \text{ MMBtu/hr} = 0.26 \text{ lb/MMBtu}$$

$$0.26 \text{ lb/MMBtu} \times \frac{1 \text{ MMBtu}}{8,578 \text{ scf}_{\text{exhaust}}} \times \frac{1 \text{ lb} \cdot \text{mol}}{64 \text{ lb} \cdot \text{SO}_2} \times \frac{10.73 \text{ psi} \cdot \text{ft}^3}{\text{lb} \cdot \text{mol} \cdot ^\circ \text{R}} \times \frac{520^\circ \text{R}}{14.7 \text{ psi}} \times 1,000,000 \text{ ppm} = 179.8 \text{ ppmv}$$

Since 179.8 ppmv is \leq 2000 ppmv, the furnace is expected to comply with Rule 4801.

N-593-12-11

Glass Furnace 22-A

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

$$\text{SO}_x = (225.0 \text{ lb/day} \div 24 \text{ hr/day}) \div 29 \text{ MMBtu/hr} = 0.32 \text{ lb/MMBtu}$$

$$0.32 \text{ lb/MMBtu} \times \frac{1 \text{ MMBtu}}{8,578 \text{ scf}_{\text{exhaust}}} \times \frac{1 \text{ lb} \cdot \text{mol}}{64 \text{ lb} \cdot \text{SO}_2} \times \frac{10.73 \text{ psi} \cdot \text{ft}^3}{\text{lb} \cdot \text{mol} \cdot ^\circ \text{R}} \times \frac{520^\circ \text{R}}{14.7 \text{ psi}} \times 1,000,000 \text{ ppm} = 221.2 \text{ ppmv}$$

Since 214.3 ppmv is \leq 2000 ppmv, the furnace is expected to comply with Rule 4801.

N-593-13-10

Glass Furnace 22-B

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

$$\text{SO}_x = (306.0 \text{ lb/day} \div 24 \text{ hr/day}) \div 67 \text{ MMBtu/hr} = 0.19 \text{ lb/MMBtu}$$

$$0.19 \text{ lb/MMBtu} \times \frac{1 \text{ MMBtu}}{8,578 \text{ scf}_{\text{exhaust}}} \times \frac{1 \text{ lb} \cdot \text{mol}}{64 \text{ lb} \cdot \text{SO}_2} \times \frac{10.73 \text{ psi} \cdot \text{ft}^3}{\text{lb} \cdot \text{mol} \cdot ^\circ\text{R}} \times \frac{520^\circ\text{R}}{14.7 \text{ psi}} \times 1,000,000 \text{ ppm} = 137.9 \text{ ppmv}$$

Since 137.9 ppmv is ≤ 2000 ppmv, the furnace is expected to comply with Rule 4801.

40 CFR Part 64 Compliance Assurance Monitoring

40 CFR Part 64 requires Compliance Assurance Monitoring (CAM) be applied to emission units (on a pollutant by pollutant basis) meeting all of the following criteria:

- The unit is subject to an emission limitation or standard for the applicable regulated air pollutant (or a surrogate thereof), other than an emission limitation or standard that is exempt under paragraph (b)(1) of this section;
- The unit uses a control device to achieve compliance with any such emission limitation or standard; and
- The unit has potential pre-control device emissions of the applicable regulated air pollutant that are equal to or greater than 100 percent of the amount, in tons per year, required for a source to be classified as a major source. For purposes of this paragraph, "potential pre-control device emissions" shall have the same meaning as "potential to emit," as defined in Sec. 64.1, except that emission reductions achieved by the applicable control device shall not be taken into account.

N-593-10-14

Glass Furnace 22-C

This glass furnace is not equipped with control devices for NO_x, VOC, or CO. Therefore, CAM is not required for NO_x, VOC, or CO.

The glass furnace will be equipped with an electrostatic precipitator to control PM₁₀ emissions. The uncontrolled PM₁₀ emissions are limited to 0.9 lb-PM₁₀/ton by the current permit to operate. The annual glass production rate is 146,000 tons. Therefore, the uncontrolled PM₁₀ emissions are:

$$\text{Uncontrolled PM}_{10} = 146,000 \text{ tons/year} \times 0.9 \text{ lb-PM}_{10}/\text{ton} = 131,400 \text{ lb-PM}_{10}/\text{year}$$

Pursuant to 40 CFR 64.2(3), to be subject to CAM, the emissions unit must have a pre-control emissions rate that is equal to or greater than 100% of the major source threshold, on a pollutant by pollutant basis. The major source threshold for PM₁₀ is 140,000 lb-PM₁₀/year. Since the uncontrolled PM₁₀ emissions from this furnace are lower than the major source threshold for PM₁₀, CAM is not applicable for PM₁₀.

The glass furnace will also be equipped with a SOx scrubber. The controlled SOx emissions rate will be continuously monitored using a CEMS. 40 CFR 64.2(b)(vi) states that CAM requirements are not applicable to emission limitations or standards for which a part 70 or 71 permit specifies a continuous compliance determination method, as defined in 40 CFR 64.1.

A continuous compliance determination method is defined in 40 CFR 64.1 as a method, specified by the applicable standard or permit condition, which:

1. is used to determine compliance with an emission limitation or standard on a continuous basis, consistent with the averaging period for the emission limitation or standard; and
2. provides data either in units of the standard or correlated directly with the compliance limit.

The applicant's SOx CEMS will be used to determine compliance with the proposed SOx limit on a continuous basis, consistent with the averaging period for the emission limitation. Additionally, the SOx CEMS will provide data in units of the standard. Therefore, the SOx CEMS is a continuous compliance determination method and the glass furnace is exempt from CAM requirements for SOx.

ESP Dust Silos

Each silo will be equipped with a bin vent filter to control PM₁₀ emissions at a control efficiency of 99% by weight. The controlled daily PM₁₀ emission rate is 0.0006 lb-PM₁₀/day. Using this and the control efficiency, the uncontrolled PM₁₀ emission rate is:

$$\begin{aligned}\text{Uncontrolled PM}_{10} &= 0.0006 \text{ lb-PM}_{10}/\text{day} \div (1-0.99) = 0.06 \text{ lb-PM}_{10}/\text{day} \\ \text{Uncontrolled PM}_{10} &= 0.06 \text{ lb-PM}_{10}/\text{day} \times 365 \text{ days/year} = 22 \text{ lb-PM}_{10}/\text{year}\end{aligned}$$

The major source threshold for PM₁₀ is 140,000 lb-PM₁₀/year. Since the uncontrolled PM₁₀ emissions from this operation are lower than the major source threshold for PM₁₀, CAM is not applicable for PM₁₀.

N-593-12-11

Glass Furnace 22-A

This glass furnace is not equipped with control devices for NOx, VOC, or CO. Therefore, CAM is not required for NOx, VOC, or CO.

The glass furnace will be equipped with an electrostatic precipitator to control PM₁₀ emissions. The uncontrolled PM₁₀ emissions are limited to 0.9 lb-PM₁₀/ton by the current permit to operate.

The annual glass production rate is 87,235 tons. Therefore, the uncontrolled PM₁₀ emissions are:

$$\text{Uncontrolled PM}_{10} = 87,235 \text{ tons/year} \times 0.9 \text{ lb-PM}_{10}/\text{ton} = 78,512 \text{ lb-PM}_{10}/\text{year}$$

Pursuant to 40 CFR 64.2(3), to be subject to CAM, the emissions unit must have a pre-control emissions rate that is equal to or greater than 100% of the major source threshold, on a pollutant by pollutant basis. The major source threshold for PM₁₀ is 140,000 lb-PM₁₀/year. Since the uncontrolled PM₁₀ emissions from this furnace are lower than the major source threshold for PM₁₀, CAM is not applicable for PM₁₀.

The glass furnace will also be equipped with a SO_x scrubber. The controlled SO_x emissions rate will be continuously monitored using a CEMS. 40 CFR 64.2(b)(vi) states that CAM requirements are not applicable to emission limitations or standards for which a part 70 or 71 permit specifies a continuous compliance determination method, as defined in 40 CFR 64.1.

A continuous compliance determination method is defined in 40 CFR 64.1 as a method, specified by the applicable standard or permit condition, which:

1. is used to determine compliance with an emission limitation or standard on a continuous basis, consistent with the averaging period for the emission limitation or standard; and
2. provides data either in units of the standard or correlated directly with the compliance limit.

The applicant's SO_x CEMS will be used to determine compliance with the proposed SO_x limit on a continuous basis, consistent with the averaging period for the emission limitation. Additionally, the SO_x CEMS will provide data in units of the standard. Therefore, the SO_x CEMS is a continuous compliance determination method and the glass furnace is exempt from CAM requirements for SO_x.

ESP Dust Silos

Each silo will be equipped with a bin vent filter to control PM₁₀ emissions at a control efficiency of 99% by weight. The controlled daily PM₁₀ emission rate is 0.0004 lb-PM₁₀/day. Using this and the control efficiency, the uncontrolled PM₁₀ emission rate is:

$$\begin{aligned} \text{Uncontrolled PM}_{10} &= 0.0004 \text{ lb-PM}_{10}/\text{day} \div (1-0.99) = 0.04 \text{ lb-PM}_{10}/\text{day} \\ \text{Uncontrolled PM}_{10} &= 0.04 \text{ lb-PM}_{10}/\text{day} \times 365 \text{ days/year} = 15 \text{ lb-PM}_{10}/\text{year} \end{aligned}$$

The major source threshold for PM₁₀ is 140,000 lb-PM₁₀/year. Since the uncontrolled PM₁₀ emissions from this operation are lower than the major source threshold for PM₁₀, CAM is not applicable for PM₁₀.

N-593-13-10

Glass Furnace 22-C

This glass furnace is not equipped with control devices for NO_x, VOC, or CO. Therefore, CAM is not required for NO_x, VOC, or CO.

The glass furnace will be equipped with an electrostatic precipitator to control PM₁₀ emissions. The uncontrolled PM₁₀ emissions are limited to 0.9 lb-PM₁₀/ton by the current permit to operate. The annual glass production rate is 124,100 tons. Therefore, the uncontrolled PM₁₀ emissions are:

$$\text{Uncontrolled PM}_{10} = 124,100 \text{ tons/year} \times 0.9 \text{ lb-PM}_{10}/\text{ton} = 111,690 \text{ lb-PM}_{10}/\text{year}$$

Pursuant to 40 CFR 64.2(3), to be subject to CAM, the emissions unit must have a pre-control emissions rate that is equal to or greater than 100% of the major source threshold, on a pollutant by pollutant basis. The major source threshold for PM₁₀ is 140,000 lb-PM₁₀/year. Since the uncontrolled PM₁₀ emissions from this furnace are lower than the major source threshold for PM₁₀, CAM is not applicable for PM₁₀.

The glass furnace will also be equipped with a SO_x scrubber. The controlled SO_x emissions rate will be continuously monitored using a CEMS. 40 CFR 64.2(b)(vi) states that CAM requirements are not applicable to emission limitations or standards for which a part 70 or 71 permit specifies a continuous compliance determination method, as defined in 40 CFR 64.1.

A continuous compliance determination method is defined in 40 CFR 64.1 as a method, specified by the applicable standard or permit condition, which:

1. is used to determine compliance with an emission limitation or standard on a continuous basis, consistent with the averaging period for the emission limitation or standard; and
2. provides data either in units of the standard or correlated directly with the compliance limit.

The applicant's SO_x CEMS will be used to determine compliance with the proposed SO_x limit on a continuous basis, consistent with the averaging period for the emission limitation. Additionally, the SO_x CEMS will provide data in units of the standard. Therefore, the SO_x CEMS is a continuous compliance determination method and the glass furnace is exempt from CAM requirements for SO_x.

ESP Dust Silos

Each silo will be equipped with a bin vent filter to control PM₁₀ emissions at a control efficiency of 99% by weight. The controlled daily PM₁₀ emission rate is 0.0006 lb-PM₁₀/day. Using this and the control efficiency, the uncontrolled PM₁₀ emission rate is:

$$\begin{aligned} \text{Uncontrolled PM}_{10} &= 0.0006 \text{ lb-PM}_{10}/\text{day} \div (1-0.99) = 0.06 \text{ lb-PM}_{10}/\text{day} \\ \text{Uncontrolled PM}_{10} &= 0.06 \text{ lb-PM}_{10}/\text{day} \times 365 \text{ days/year} = 22 \text{ lb-PM}_{10}/\text{year} \end{aligned}$$

The major source threshold for PM₁₀ is 140,000 lb-PM₁₀/year. Since the uncontrolled PM₁₀ emissions from this operation are lower than the major source threshold for PM₁₀, CAM is not applicable for PM₁₀.

N-593-42-1

Trona/Dry Reagent Silo

This silo will be equipped with a bin vent filter to control PM₁₀ emissions at a control efficiency of 99% by weight. The controlled daily PM₁₀ emission rate is 0.0017 lb-PM₁₀/day. Using this and the control efficiency, the uncontrolled PM₁₀ emission rate is:

$$\begin{aligned}\text{Uncontrolled PM}_{10} &= 0.0017 \text{ lb-PM}_{10}/\text{day} \div (1-0.99) = 0.17 \text{ lb-PM}_{10}/\text{day} \\ \text{Uncontrolled PM}_{10} &= 0.17 \text{ lb-PM}_{10}/\text{day} \times 365 \text{ days/year} = 62 \text{ lb-PM}_{10}/\text{year}\end{aligned}$$

The major source threshold for PM₁₀ is 140,000 lb-PM₁₀/year. Since the uncontrolled PM₁₀ emissions from this operation are lower than the major source threshold for PM₁₀, CAM is not applicable for PM₁₀.

California Environmental Quality Act (CEQA)

The California Environmental Quality Act (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 San Joaquin Valley Unified Air Pollution Control District (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.
- 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.

No other agency has or will prepare an environmental review document for the project. Thus the District is the Lead Agency for this project.

Greenhouse Gas (GHG) Significance Determination

There will be no change in fuel usage, nor CO₂ emissions from the glass furnaces. Therefore, this project will not result in an increase in project specific greenhouse gas emissions. The District therefore concludes that the project would have a less than cumulatively significant impact on global climate change.

District CEQA Findings

The District is the Lead Agency for this project because there is no other agency with broader statutory authority over this project. The District performed an Engineering Evaluation (this document) for the proposed project and determined that the activity will occur at an existing facility and the project involves negligible expansion of the existing use. Furthermore, the District determined that the activity will not have a significant effect on the environment. The District finds that the activity is categorically exempt from the provisions of CEQA pursuant to CEQA Guideline § 15031 (Existing Facilities), and finds that the project is exempt per the general rule that CEQA applies only to projects which have the potential for causing a significant effect on the environment (CEQA Guidelines §15061(b)(3)).

IX. Recommendation

Compliance with all applicable rules and regulations is expected. Issue Authorities to Construct N-593-10-14, '-12-11, '-13-9, and '-42-0 subject to the permit conditions on the attached draft Authorities to Construct in Appendix I.

X. Billing Information

Annual Permit Fees			
Permit Number	Fee Schedule	Fee Description	Annual Fee
N-593-10-14	3020-02-H	60 MMBtu/hr	\$1,030.00
N-593-12-11	3020-02-H	29 MMBtu/hr	\$1,030.00
N-593-13-10	3020-02-H	67 MMBtu/hr	\$1,030.00
N-593-42-1	3020-01-A	< 25 HP	\$87

Appendices

- I: Draft Authority to Construct Permits
- II: Current Permits to Operate
- III: Historical Actual Emissions Data for SO_x
- IV: Rule 4354 Monitoring Proposal for CO, VOC, and PM₁₀
- V: Risk Management Review
- VI: Quarterly Net Emissions Change (QNEC)
- VII: Electrostatic Precipitator Article

APPENDIX I

Draft Authority to Construct Permits

San Joaquin Valley
Air Pollution Control District

AUTHORITY TO CONSTRUCT

PERMIT NO: N-593-10-14

ISSUANCE DATE: DRAFT

LEGAL OWNER OR OPERATOR: OWENS-BROCKWAY GLASS CONTAINER
MAILING ADDRESS: 14700 W SCHULTE RD
TRACY, CA 95376

LOCATION: 14700 W SCHULTE ROAD
TRACY, CA 95376

EQUIPMENT DESCRIPTION:

MODIFICATION OF A 60 MMBTU/HR GLASS MELTING FURNACE #22-C WITH A CONTINUOUS EMISSIONS MONITORING SYSTEM (CEMS) SHARED WITH FURNACES A AND B AT A COMMON STACK, SERVED BY AN ELECTROSTATIC PRECIPITATOR (ESP); TO REMOVE THE EXISTING SHARED ELECTROSTATIC PRECIPITATOR AND CEMS AS CONTROL DEVICES WILL NO LONGER BE SHARED; TO INSTALL A CUSTOM GEA BISCHOFF INC DRY SOX SCRUBBER AND LOWER THE SOX EMISSIONS LIMIT TO 0.9 LB/TON FOR DISTRICT RULE 4354 COMPLIANCE; TO INSTALL A GEA BISCHOFF MODEL BS 78010/5.0/2X11/0.4 ELECTROSTATIC PRECIPITATOR AND ESTABLISH A CONTROLLED PM10 LIMIT OF 0.5 LB/TON FOR DISTRICT RULE 4354 COMPLIANCE; AND TO INSTALL AN ELECTROSTATIC PRECIPITATOR DUST TRANSFER AND STORAGE OPERATION WITH TWO 125 CUBIC FOOT STORAGE SILOS EACH WITH A MET-PRO CORP FLEX-KLEEN BIN VENT FILTER

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 NSR Rule] 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. All equipment, facilities, or systems installed or used to achieve compliance with the terms and conditions of the Federal Major Stationary Source 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 52.233(g)] Federally Enforceable Through Title V Permit
4. Particulate matter emissions shall not exceed 0.1 grains/dscf in concentration. [District Rule 4201 and 40 CFR 52.233(g)] 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

DAVID WARNER, Director of Permit Services

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5. Particulate matter emissions shall not exceed the hourly rate as calculated in District Rule 4202 using the equation $E=3.59P^{0.62}$ ($P < 30$ tph) or $E=17.31P^{0.16}$ ($P > 30$ tph). [District Rule 4202 and 40 CFR 52.233(g)] Federally Enforceable Through Title V Permit
6. Sulfur compound emissions shall not exceed 0.2% by volume, 2000 ppmv, on a dry basis averaged over 15 consecutive minutes. [San Joaquin County Rule 407 and District Rule 4801] Federally Enforceable Through Title V Permit
7. 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. If the equipment or operation is subject to a more stringent visible emission standard as prescribe in a permit condition, the more stringent visible emission limitation shall supersede this condition. [District Rule 4101 and San Joaquin County Rule 401] Federally Enforceable Through Title V Permit
8. No air contaminant shall be released into the atmosphere, which causes a public nuisance [District Rule 4102]
9. {1898} The exhaust stack shall vent vertically upward. The vertical exhaust flow shall not be impeded by a rain cap (flapper ok), roof overhang, or any other obstruction. [District Rule 4102]
10. The exhaust from the glass melting furnace shall be vented through an operational SOx scrubber and electrostatic precipitator, except during periods of furnace startup (when technologically infeasible), furnace idle (when technologically infeasible), and during add-on control system maintenance. Scheduled maintenance of add-on control system shall be accomplished during periods of furnace idling whenever possible. [District Rules 2201 and 4354] Federally Enforceable Through Title V Permit
11. 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 start-up 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
12. Start-up is defined as the period of time, after initial construction of 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 purposely allowed to cool from operating temperature and molten glass is removed from the tank for the purposes of a furnace rebuild. 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
13. During startup, the permittee shall comply with the requirements of Section 5.2 of District Rule 4354. [District Rule 4354] Federally Enforceable Through Title V Permit
14. The duration of shutdown of the furnace, as measured from the time the furnace operations drop below the idle threshold (operation of the furnace at less than 25 percent of the permitted glass production capacity or fuel use capacity) to when all emissions from the furnace cease, shall not exceed 20 days. [District Rule 4354] Federally Enforceable Through Title V Permit
15. During periods when the furnace is in idle state, the glass throughput shall not exceed 50 tons per day. [District NSR Rule] Federally Enforceable Through Title V Permit
16. The emission control system shall be in operation whenever technologically feasible during furnace idling to minimize emissions. [District Rule 4354] Federally Enforceable Through Title V Permit
17. NOx, CO, VOC, SOx, and PM10 emissions during idling shall not exceed the amount as calculated using the following equation: $NOx, CO, VOC, SOx, \text{ or } PM10 \text{ (lb/day)} = \text{Applicable emission limit (lb/ton)} \times \text{Furnace permitted production capacity (tons/day)}$. [District Rule 4354] Federally Enforceable Through Title V Permit
18. The PM10 and SOx emission limits of this permit shall not apply during routine maintenance of the respective add-on control systems. The routine maintenance in each calendar year shall not exceed 144 hours total for all add-on controls and routine maintenance shall be conducted in a manner consistent with good air pollution control practices for minimizing emissions. [District Rule 4354]

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19. The furnace shall be fired on PUC regulated natural gas or LPG/propane fuel only. [District NSR Rule] Federally Enforceable Through Title V Permit
20. 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
21. The glass pull rate shall not exceed 417 tons during any one day. [District Rules 2201 and 4354] Federally Enforceable Through Title V Permit
22. The glass pull rate shall not exceed 146,000 tons during any 12 consecutive month period. [District NSR Rule] Federally Enforceable Through Title V Permit
23. The weight percent of cullet per batch shall not be less than 17.5%. Batch weight distribution data shall be available for District inspection during normal operating hours. [District NSR Rule] Federally Enforceable Through Title V Permit
24. NOx emissions from the glass furnace, except during periods of start-up, shutdown, and idling, shall not exceed any of the following limits: 69.50 lb-NOx/hr or 4.0 lb-NOx/ton of glass pulled, based on a block 24-hour average. [District Rules 2201 and 4354] Federally Enforceable Through Title V Permit
25. SOx emissions from the glass furnace, except during periods of start-up, shutdown, and idling, shall not exceed any of the following limits: 15.64 lb-SOx/hr or 0.9 lb-SOx/ton of glass pulled, based on a 30-day rolling average. [District Rules 2201 and 4354] Federally Enforceable Through Title V Permit
26. CO emissions from the glass furnace, except during periods of start-up, shutdown, and idling, shall not exceed any of the following limits: 300 ppmvd @ 8% O2 or 1.0 lb-CO/ton of glass pulled, based on a 3-hour rolling average. [District Rules 2201 and 4354] Federally Enforceable Through Title V Permit
27. VOC emissions from the glass furnace, except during periods of start-up, shutdown, and idling, shall not exceed any of the following limits: 20 ppmvd @ 8% O2 or 0.25 lb-VOC/ton of glass pulled, based on a 3-hour rolling average. [District Rules 2201 and 4354] Federally Enforceable Through Title V Permit
28. PM10 emissions from the glass furnace, except during periods of start-up, shutdown, and idling, shall not exceed either of the following limits: 6.59 lb-PM10/hr or 0.5 lb-PM10/ton of glass pulled, based on a block 24-hour average. [District Rules 2201 and 4354] Federally Enforceable Through Title V Permit
29. Particulate matter emissions shall not exceed 17.5 lb/hr. [40 CFR 52.233(g)] Federally Enforceable Through Title V Permit
30. Daily combined emissions from furnaces N-593-10 (22-C), N-593-12 (22-A), and N-593-13 (22-B) shall not exceed any of the following limits: 3,392.2 lb-NOx/day, 300.0 lb-PM10/day, and 105.0 lb-filterable PM10/day. [District NSR Rule and 40 CFR 52.233(g)] Federally Enforceable Through Title V Permit
31. Combined emissions from furnaces N-593-10 (22-C), N-593-12 (22-A), and N-593-13 (22-B) computed over a 12 consecutive month period shall not exceed either of the following limits: 606,540 tons-NOx/year and 55 tons-PM10/year. [District NSR Rule] Federally Enforceable Through Title V Permit
32. All required source testing shall conform to the compliance testing procedures described in District Rule 1081. [District Rule 1081] Federally Enforceable Through Title V Permit
33. 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
34. Initial performance testing shall be conducted for VOC (ppmv and lb/ton of glass pulled), CO (ppmv and lb/ton of glass pulled), PM10 (lb/ton of glass pulled and lb/hr), SOx (lb/ton of glass pulled and lb/hr), and NOx (lb/ton of glass pulled) emissions within 60 days of reaching maximum production or within 180 days of implementing the modifications of this ATC, whichever is first. [District Rule 2201] Federally Enforceable Through Title V Permit

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35. Annual performance testing shall be conducted for VOC (ppmv and lb/ton of glass pulled), CO (ppmv and lb/ton of glass pulled), PM10 (lb/ton of glass pulled and lb/hr), SOx (lb/ton of glass pulled and lb/hr), and NOx (lb/ton of glass pulled) emissions at least once every calendar year. To qualify as an annual performance test, the test date shall be at least 6 months after, and not more than 18 months after the initial and the previous annual performance test. [District NSR Rule, Rule 4354, and 40 CFR 52.233(g)] Federally Enforceable Through Title V Permit
36. Furnace conditions during source testing shall be representative of normal operations, with a glass production rate equal to or greater than 60 percent of the permitted glass production capacity. The source test may be conducted at a glass production rate lower than 60 percent of the permitted glass production rate, provided that the permittee demonstrates that the proposed alternative glass production rate is representative of normal operations and the proposed alternative glass production rate is approved by the APCO in writing. [District Rule 4354] Federally Enforceable Through Title V Permit
37. 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 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
38. Performance testing shall be conducted using following test methods: (1) Oxides of Nitrogen: EPA Method 7E, EPA Method 19, or ARB Method 100; (2) Carbon Monoxide: EPA Method 10, or ARB Method 100; (3) VOC (ppmv): EPA Method 25A expressed in terms of carbon, or ARB Method 100, EPA Method 18 or ARB method 422 to determine emissions of exempt compounds; (4) Stack Gas Oxygen, Carbon Dioxide, Excess Air, and Dry Molecular Weight: EPA Method 3 or 3A, or ARB Method 100; (5) Oxides of Sulfur: EPA Method 6C, EPA Method 8, or ARB Method 100; (6) Filterable PM10: EPA Method 5, EPA Method 201, or EPA Method 201A. An operator choosing EPA Method 5 shall count all PM collected as PM10; (7) Condensible PM10: EPA Method 202 with the following procedures, (7a) Purge the impinger with dry nitrogen for one hour. The one hour purge with dry nitrogen shall be performed as soon as possible after the final leak check of the system, (7b) Neutralize the inorganic portion to a pH of 7.0. Use the procedure, "Determination of NH4 Retained in Sample by Titration" described in Method 202 to neutralize sulfuric acid, (7c) Evaporate the last 1 ml of the inorganic fraction by air drying following evaporation of the bulk of the impinger water in a 105 degrees C oven as described in the first sentence of the Method 202 section titled "Inorganic Fraction Weight Determination". [District NSR Rule, Districts Rule 4354 and 2520, and 40 CFR 52.233(g)] Federally Enforceable Through Title V Permit
39. In lieu of performing a source test for PM10, the results of CARB Method 5 or EPA Methods 5 and 8 may be used for measuring PM10 emissions limit. If this option is used, then all of the particulate emissions will be considered to be PM10. [District NSR Rule] Federally Enforceable Through Title V Permit
40. 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 exceedance of 100 hours. [District Rule 1081] Federally Enforceable Through Title V Permit
41. For source testing purposes, arithmetic average of three 30-consecutive-minute test runs shall be used to determine compliance with NOx, CO, VOC, and SOx emission limits. [District Rules 2201, 4354, 6.4.4] Federally Enforceable Through Title V Permit
42. For source testing purposes, arithmetic average of three 60-consecutive-minute test runs shall be used to determine compliance with PM10 emission limits. [District Rule 4354, 6.4.5] Federally Enforceable Through Title V Permit
43. The applicant shall install, maintain, and operate a continuous emissions monitoring system (CEMS) to measure stack NOx, SOx, CO, O2 concentration (if required for compliance determination), and stack gas volumetric flow rate and shall meet the performance specification requirements in 40 CFR, Part 60, Appendix B, Performance Specifications 2, 3, and 4, or shall meet equivalent specifications established by mutual agreement of the District, the California Air Resources Board, and EPA. The CEM systems shall also be operated, maintained, and calibrated pursuant to the requirements of 40 CFR 60.7(c) and 40 CFR 60.13. [District Rules 1080, 2201, and 4354] Federally Enforceable Through Title V Permit

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44. The applicant shall install, maintain, and operate a continuous opacity monitor (COM) and shall meet the performance specification requirements in 40 CFR Part 60, Appendix B, or shall meet equivalent specifications established by mutual consent of the District, the California Air Resources Board, and EPA. [District Rules 1080, 2201, and 4101] Federally Enforceable Through Title V Permit
45. The facility shall install and maintain equipment, facilities, and systems compatible with the Districts 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
46. Upon notice by the District that the facility's CEM system is not providing polling data, the facility may continue to operate without providing data for a maximum of 30 days per calendar year provided the CEM data is sent to the District by a District-approved alternate method. [District Rule 1080] Federally Enforceable Through Title V Permit
47. {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
48. Results of the CEM system shall be averaged over the appropriate averaging period, using consecutive 15-minute samples in accordance with all applicable requirements of 40 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
49. Records of the following items shall be maintained: the occurrence and duration of any malfunction, performance testing, calibrations, checks, adjustments, and any period during which the CEM is inoperative, and the CEM emission measurements. [District Rule 1080] Federally Enforceable Through Title V Permit
50. Cylinder gas audits (CGAs) of continuous emission monitors shall be conducted quarterly, except during quarters in which relative 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
51. 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
52. Any visible emission monitoring exceedance showing air contaminant discharged into the atmosphere for a period or periods aggregating more than three minutes in any one hour which is as dark as, or darker than, Ringelmann 1 or 20% opacity shall be reported by the operator to the APCO within 96 hours. [District Rule 1080] Federally Enforceable Through Title V Permit
53. Any violation of an emission standard, as shown by the stack CEMS, shall be reported to the APCO within 96 hours of detection. [District Rule 1080] Federally Enforceable Through Title V Permit
54. The operator shall notify the APCO no later than eight hours after the detection of a breakdown of the CEMS. The operator shall inform the APCO of the intent to shutdown a CEMS at least 24 hours prior to the event. [District Rule 1080] Federally Enforceable Through Title V Permit
55. Permittee shall submit a written report 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 (averaging period used for data reporting shall correspond to the averaging period for each respective emission standard); corrective actions taken and preventative measures adopted; applicable time and data for each period during a 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 or when the CEMS has not been inoperative, repaired, or adjusted. [District Rule 1080] Federally Enforceable Through Title V Permit
56. The permittee shall monitor and record the furnace temperature daily. [District Rule 4354] Federally Enforceable Through Title V Permit

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57. The initial minimum temperature to show compliance with the VOC emission limit of this permit shall be established during the initial source test. [District Rule 4354] Federally Enforceable Through Title V Permit
58. The furnace temperature shall be maintained at or above the level for which compliance with the permitted VOC limit was demonstrated during the most recent source test. If the measured furnace temperature is less than the minimum furnace temperature limit, the permittee shall conduct a certified VOC source test within 60 days to re-establish the minimum temperature limit. In lieu of conducting a certified VOC source test, the permittee may stipulate that a violation has occurred, subject to enforcement action. The permittee must then correct the violation (return the furnace temperature to or above the minimum temperature limit), show compliance has been re-established, and resume monitoring procedures. If the deviation is a result of a qualifying breakdown condition pursuant to District Rule 1100, the permittee may fully comply with Rule 1100 in lieu of performing the notification and testing required by this condition. [District Rule 4354] Federally Enforceable Through Title V Permit
59. The permittee shall keep records of the date and time of the furnace temperature readings and the furnace temperature during the most recent source test that showed compliance with the VOC emission limit. [District Rule 4354] Federally Enforceable Through Title V Permit
60. The permittee shall install, operate, and maintain a continuous monitoring and recording system to accurately measure and record the electrostatic precipitator secondary current and secondary voltage. [District Rule 4354] Federally Enforceable Through Title V Permit
61. The average daily total power input into the electrostatic precipitator shall be calculated by multiplying the average daily secondary amperage by the average daily secondary voltage, both recorded by the continuous monitoring system. [District Rule 4354] Federally Enforceable Through Title V Permit
62. The minimum average daily total power input into the electrostatic precipitator that shows compliance with the PM10 emission limit of this permit shall be established during the initial source test. [District Rule 4354] Federally Enforceable Through Title V Permit
63. The average daily total power input of the electrostatic precipitator shall be maintained at or above the level for which compliance with the permitted PM10 limit was demonstrated during the most recent source test. If the minimum measured average daily total power input into the electrostatic precipitator is exceeded, the permittee shall conduct a certified PM10 source test within 60 days to re-establish the minimum average daily total power input limit. In lieu of conducting a certified PM10 source test, the permittee may stipulate that a violation has occurred, subject to enforcement action. The permittee must then correct the violation (return the average daily total power input to or above the minimum level), show compliance has been re-established, and resume monitoring procedures. If the deviation is a result of a qualifying breakdown condition pursuant to District Rule 1100, the permittee may fully comply with Rule 1100 in lieu of performing the notification and testing required by this condition. [District Rule 4354] Federally Enforceable Through Title V Permit
64. The permittee shall keep records of the date of the measure electrostatic precipitator average daily total power input and the minimum electrostatic precipitator daily total power input established during the most recent source test that showed compliance with the PM10 emission limit of this permit. [District Rule 4354] Federally Enforceable Through Title V Permit
65. Replacement filters numbering at least 10% of the total number of filters in the largest bin vent filter using each type of filter shall be maintained on the premises. [District Rule 2201] Federally Enforceable Through Title V Permit
66. Each bin vent filter cleaning frequency and duration shall be adjusted to optimize the control efficiency. [District Rule 2201] Federally Enforceable Through Title V Permit
67. Visible emissions from the exhaust of each bin vent filter shall not equal or exceed 5% opacity for a period or periods aggregating more than three minutes in any one hour. [District Rule 2201] Federally Enforceable Through Title V Permit
68. The throughput for each electrostatic precipitator dust silo shall not exceed 1.81 tons in any one day. [District Rule 2201] Federally Enforceable Through Title V Permit
69. PM10 emissions from each electrostatic precipitator dust silo shall not exceed 0.00034 lb/ton. [District Rule 2201] Federally Enforceable Through Title V Permit

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70. Each bin vent filter shall be equipped with a pressure differential gauge to indicate the pressure drop across the filter. The gauge shall be maintained in good working condition at all times and shall be located in an easily accessible location. [District NSR Rule] Federally Enforceable Through Title V Permit
71. The differential pressure gauge reading range for each bin vent filter shall be established per manufacturer's recommendation at time of start up inspection. [District Rule 2201] Federally Enforceable Through Title V Permit
72. The differential operating pressure across each bin vent filter shall be monitored and recorded on each day that the unit operates. [District Rule 2201] Federally Enforceable Through Title V Permit
73. Records of all maintenance of each bin vent filter, including all change outs of filter media, shall be maintained. [District Rule 2201] Federally Enforceable Through Title V Permit
74. A log of daily process weight, wt% cullet per batch, electric boosting, fuel usage and other relevant operating parameters shall be kept on the premises and shall be made available for District inspection upon request. [District Rule 2520, 9.3.2 and District NSR Rule] Federally Enforceable Through Title V Permit
75. During periods of electrostatic precipitator maintenance and furnace startup, the furnace visible emissions shall be recorded by CARB certified personnel during daylight hours using EPA Method 9 within 2 hours of electrostatic precipitator shutdown or bypass and at least three times a day. Each visible emissions evaluation shall be at least 4 hours apart. [District NSR Rule] Federally Enforceable Through Title V Permit
76. The applicant shall maintain accurate records of the time, date, cause (e.g. electrostatic precipitator maintenance, furnace startup, or furnace idle), and duration electrostatic precipitator is not in operation and result of any visible emissions testing during the period. Records shall be made available for District inspection upon request. [District Rule 1070] Federally Enforceable Through Title V Permit
77. The permittee shall maintain daily records of the total hours of operation, type and quantity of fuel used, quantity of glass pulled, the NOx emission rate (in lb/ton of glass pulled), the CO emission rate (in lb/ton of glass pulled), and the SOx emission rate (in lb/ton of glass pulled). The permittee shall also maintain records of source tests, the acceptable range for each approved key system operating parameter as established by source testing, all instances of maintenance and repair, any malfunction, and records of all periods of idling, startup, or shutdown. All records shall be maintained on the premises for a period of five years and shall be made available for District inspection upon request. [District Rules 2201 and 4354] Federally Enforceable Through Title V Permit
78. Permittee shall keep a record of the combined daily NOx emissions, in pounds, for furnaces N-593-10 (22-C), N-593-12 (22-A) and N-593-13 (22-C). [District Rule 2201] Federally Enforceable Through Title V Permit
79. Permittee shall keep a record of the combined rolling 12-month NOx and PM10 emissions for furnaces N-593-10 (22-C), N-593-12 (22-A), and N-593-13 (22-C). This record shall be updated on a monthly basis. [District Rule 2201] Federally Enforceable Through Title V Permit
80. Compliance with the conditions in the permit requirements for this unit shall be deemed compliance with District Rules 4201 and 4202. A permit shield is granted from these requirements. [District Rule 2520, 13.2] Federally Enforceable Through Title V Permit
81. The requirements of District Rule 4301 were determined to not apply to this unit. A permit shield is granted from these requirements. [District Rule 2520, 13.2] Federally Enforceable Through Title V Permit
82. 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
83. 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
84. The requirements of 40 CFR 61, Subpart N were determined to not apply to this unit. A permit shield is granted from these requirements. [District Rule 2520, 13.2] Federally Enforceable Through Title V Permit

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San Joaquin Valley
Air Pollution Control District

AUTHORITY TO CONSTRUCT

ISSUANCE DATE: DRAFT
DRAFT

PERMIT NO: N-593-12-12

LEGAL OWNER OR OPERATOR: OWENS-BROCKWAY GLASS CONTAINER
MAILING ADDRESS: 14700 W SCHULTE RD
TRACY, CA 95376

LOCATION: 14700 W SCHULTE ROAD
TRACY, CA 95376

EQUIPMENT DESCRIPTION:

MODIFICATION OF A 29 MMBTU/HR GLASS MELTING OXYGEN-ENRICHED AIR-STAGING (OEAS) FURNACE #22-A WITH A CONTINUOUS EMISSIONS MONITORING SYSTEM (CEMS) SHARED WITH FURNACES B AND C AT A COMMON STACK, SERVED BY AN ELECTROSTATIC PRECIPITATOR (ESP): TO REMOVE THE EXISTING SHARED ELECTROSTATIC PRECIPITATOR AND CEMS AS CONTROL DEVICES WILL NO LONGER BE SHARED; TO INSTALL A CUSTOM GEA BISCHOFF INC DRY SOX SCRUBBER AND LOWER THE SOX EMISSIONS LIMIT TO 0.9 LB/TON FOR DISTRICT RULE 4354 COMPLIANCE; TO INSTALL A GEA BISCHOFF MODEL BS 78010/5.0/2X7/0.4 ELECTROSTATIC PRECIPITATOR AND ESTABLISH A CONTROLLED PM10 LIMIT OF 0.5 LB/TON FOR DISTRICT RULE 4354 COMPLIANCE; AND TO INSTALL AN ELECTROSTATIC PRECIPITATOR DUST TRANSFER AND STORAGE OPERATION WITH TWO 125 CUBIC FOOT STORAGE SILOS EACH WITH A MET-PRO CORP FLEX-KLEEN BIN VENT FILTER

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 NSR Rule] 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. All equipment, facilities, or systems installed or used to achieve compliance with the terms and conditions of the Federal Major Stationary Source 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 52.233(g)] 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

DAVID WARNER, Director of Permit Services

N-593-12-12: Apr 27 2010 11:34AM - HARADERJ : Joint Inspection NOT Required

4. Particulate matter emissions shall not exceed 0.1 grains/dscf in concentration. [District Rule 4201 and 40 CFR 52.233(g)] Federally Enforceable Through Title V Permit
5. Particulate matter emissions shall not exceed the hourly rate as calculated in District Rule 4202 using the equation $E=3.59P^{0.62}$ ($P < 30$ tph) or $E=17.31P^{0.16}$ ($P > 30$ tph). [District Rule 4202 and 40 CFR 52.233(g)] Federally Enforceable Through Title V Permit
6. Sulfur compound emissions shall not exceed 0.2% by volume, 2000 ppmv, on a dry basis averaged over 15 consecutive minutes. [San Joaquin County Rule 407 and District Rule 4801] Federally Enforceable Through Title V Permit
7. 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. If the equipment or operation is subject to a more stringent visible emission standard as prescribe in a permit condition, the more stringent visible emission limitation shall supersede this condition. [District Rule 4101 and San Joaquin County Rule 401] Federally Enforceable Through Title V Permit
8. No air contaminant shall be released into the atmosphere, which causes a public nuisance [District Rule 4102]
9. {1898} The exhaust stack shall vent vertically upward. The vertical exhaust flow shall not be impeded by a rain cap (flapper ok), roof overhang, or any other obstruction. [District Rule 4102]
10. The exhaust from the glass melting furnace shall be vented through an operational SOx scrubber and electrostatic precipitator, except during periods of furnace startup (when technologically infeasible), furnace idle (when technologically infeasible), and during add-on control system maintenance. Scheduled maintenance of add-on control system shall be accomplished during periods of furnace idling whenever possible. [District Rules 2201 and 4354] Federally Enforceable Through Title V Permit
11. 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 start-up 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
12. Start-up is defined as the period of time, after initial construction of 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 purposely allowed to cool from operating temperature and molten glass is removed from the tank for the purposes of a furnace rebuild. 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
13. During startup, the permittee shall comply with the requirements of Section 5.2 of District Rule 4354. [District Rule 4354] Federally Enforceable Through Title V Permit
14. The duration of shutdown of the furnace, as measured from the time the furnace operations drop below the idle threshold (operation of the furnace at less than 25 percent of the permitted glass production capacity or fuel use capacity) to when all emissions from the furnace cease, shall not exceed 20 days. [District Rule 4354] Federally Enforceable Through Title V Permit
15. During periods when the furnace is in idle state, the glass throughput shall not exceed 50 tons per day. [District NSR Rule] Federally Enforceable Through Title V Permit
16. The emission control system shall be in operation whenever technologically feasible during furnace idling to minimize emissions. [District Rule 4354] Federally Enforceable Through Title V Permit
17. NOx, CO, VOC, SOx, and PM10 emissions during idling shall not exceed the amount as calculated using the following equation: $NOx, CO, VOC, SOx, \text{ or } PM10 \text{ (lb/day)} = \text{Applicable emission limit (lb/ton)} \times \text{Furnace permitted production capacity (tons/day)}$. [District Rule 4354] Federally Enforceable Through Title V Permit

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18. The PM10 and SOx emission limits of this permit shall not apply during routine maintenance of the respective add-on control systems. The routine maintenance in each calendar year shall not exceed 144 hours total for all add-on controls and routine maintenance shall be conducted in a manner consistent with good air pollution control practices for minimizing emissions. [District Rule 4354]
19. The furnace shall be fired on PUC regulated natural gas or LPG/propane fuel only. [District NSR Rule] Federally Enforceable Through Title V Permit
20. 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
21. The glass pull rate shall not exceed 250 tons during any one day. [District Rules 2201 and 4354] Federally Enforceable Through Title V Permit
22. The glass pull rate shall not exceed 87,235 tons during any 12 consecutive month period. [District NSR Rule] Federally Enforceable Through Title V Permit
23. The weight percent of cullet per batch shall not be less than 13.6%. Batch weight distribution data shall be available for District inspection during normal operating hours. [District NSR Rule] Federally Enforceable Through Title V Permit
24. NOx emissions from the glass furnace, except during periods of start-up, shutdown, and idling, shall not exceed any of the following limits: 41.67 lb-NOx/hr or 4.0 lb-NOx/ton of glass pulled, based on a block 24-hour average. [District Rules 2201 and 4354] Federally Enforceable Through Title V Permit
25. SOx emissions from the glass furnace, except during periods of start-up, shutdown, and idling, shall not exceed any of the following limits: 9.38 lb-SOx/hr or 0.9 lb-SOx/ton of glass pulled, based on a 30-day rolling average. [District Rules 2201 and 4354] Federally Enforceable Through Title V Permit
26. CO emissions from the glass furnace, except during periods of start-up, shutdown, and idling, shall not exceed any of the following limits: 300 ppmvd @ 8% O2 or 1.0 lb-CO/ton of glass pulled, based on a 3-hour rolling average. [District Rules 2201 and 4354] Federally Enforceable Through Title V Permit
27. VOC emissions from the glass furnace, except during periods of start-up, shutdown, and idling, shall not exceed any of the following limits: 20 ppmvd @ 8% O2 or 0.25 lb-VOC/ton of glass pulled, based on a 3-hour rolling average. [District Rules 2201 and 4354] Federally Enforceable Through Title V Permit
28. PM10 emissions from the glass furnace, except during periods of start-up, shutdown, and idling, shall not exceed either of the following limits: 3.78 lb-PM10/hr or 0.5 lb-PM10/ton of glass pulled, based on a block 24-hour average. [District Rules 2201 and 4354] Federally Enforceable Through Title V Permit
29. Daily combined emissions from furnaces N-593-10 (22-C), N-593-12 (22-A), and N-593-13 (22-B) shall not exceed any of the following limits: 3,392.2 lb-NOx/day, 300.0 lb-PM10/day, and 105.0 lb-filterable PM10/day. [District NSR Rule and 40 CFR 52.233(g)] Federally Enforceable Through Title V Permit
30. Combined emissions from furnaces N-593-10 (22-C), N-593-12 (22-A), and N-593-13 (22-B) computed over a 12 consecutive month period shall not exceed either of the following limits: 606.540 tons-NOx/year and 55 tons-PM10/year. [District NSR Rule] Federally Enforceable Through Title V Permit
31. All required source testing shall conform to the compliance testing procedures described in District Rule 1081. [District Rule 1081] Federally Enforceable Through Title V Permit
32. 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
33. Initial performance testing shall be conducted for VOC (ppmv and lb/ton of glass pulled), CO (ppmv and lb/ton of glass pulled), PM10 (lb/ton of glass pulled and lb/hr), SOx (lb/ton of glass pulled and lb/hr), and NOx (lb/ton of glass pulled) emissions within 60 days of reaching maximum production or within 180 days of implementing the modifications of this ATC, whichever is first. [District Rule 2201] Federally Enforceable Through Title V Permit

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34. Annual performance testing shall be conducted for VOC (ppmv and lb/ton of glass pulled), CO (ppmv and lb/ton of glass pulled), PM10 (lb/ton of glass pulled and lb/hr), SOx (lb/ton of glass pulled and lb/hr), and NOx (lb/ton of glass pulled) emissions at least once every calendar year. To qualify as an annual performance test, the test date shall be at least 6 months after, and not more than 18 months after the initial and the previous annual performance test. [District NSR Rule, Rule 4354, and 40 CFR 52.233(g)] Federally Enforceable Through Title V Permit
35. Furnace conditions during source testing shall be representative of normal operations, with a glass production rate equal to or greater than 60 percent of the permitted glass production capacity. The source test may be conducted at a glass production rate lower than 60 percent of the permitted glass production rate, provided that the permittee demonstrates that the proposed alternative glass production rate is representative of normal operations and the proposed alternative glass production rate is approved by the APCO in writing. [District Rule 4354] Federally Enforceable Through Title V Permit
36. 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 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
37. Performance testing shall be conducted using following test methods: (1) Oxides of Nitrogen: EPA Method 7E, EPA Method 19, or ARB Method 100; (2) Carbon Monoxide: EPA Method 10, or ARB Method 100; (3) VOC (ppmv): EPA Method 25A expressed in terms of carbon, or ARB Method 100, EPA Method 18 or ARB method 422 to determine emissions of exempt compounds; (4) Stack Gas Oxygen, Carbon Dioxide, Excess Air, and Dry Molecular Weight: EPA Method 3 or 3A, or ARB Method 100; (5) Oxides of Sulfur: EPA Method 6C, EPA Method 8, or ARB Method 100; (6) Filterable PM10: EPA Method 5, EPA Method 201, or EPA Method 201A. An operator choosing EPA Method 5 shall count all PM collected as PM10; (7) Condensable PM10: EPA Method 202 with the following procedures, (7a) Purge the impinger with dry nitrogen for one hour. The one hour purge with dry nitrogen shall be performed as soon as possible after the final leak check of the system, (7b) Neutralize the inorganic portion to a pH of 7.0. Use the procedure, "Determination of NH4 Retained in Sample by Titration" described in Method 202 to neutralize sulfuric acid, (7c) Evaporate the last 1 ml of the inorganic fraction by air drying following evaporation of the bulk of the impinger water in a 105 degrees C oven as described in the first sentence of the Method 202 section titled "Inorganic Fraction Weight Determination". [District NSR Rule, Districts Rule 4354 and 2520, and 40 CFR 52.233(g)] Federally Enforceable Through Title V Permit
38. In lieu of performing a source test for PM10, the results of CARB Method 5 or EPA Methods 5 and 8 may be used for measuring PM10 emissions limit. If this option is used, then all of the particulate emissions will be considered to be PM10. [District NSR Rule] Federally Enforceable Through Title V Permit
39. 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 exceedance of 100 hours. [District Rule 1081] Federally Enforceable Through Title V Permit
40. For source testing purposes, arithmetic average of three 30-consecutive-minute test runs shall be used to determine compliance with NOx, CO, VOC, and SOx emission limits. [District Rules 2201, 4354, 6.4.4] Federally Enforceable Through Title V Permit
41. For source testing purposes, arithmetic average of three 60-consecutive-minute test runs shall be used to determine compliance with PM10 emission limits. [District Rule 4354, 6.4.5] Federally Enforceable Through Title V Permit
42. The applicant shall install, maintain, and operate a continuous emissions monitoring system (CEMS) to measure stack NOx, SOx, CO, O2 concentration (if required for compliance determination), and stack gas volumetric flow rate and shall meet the performance specification requirements in 40 CFR, Part 60, Appendix B, Performance Specifications 2, 3, and 4, or shall meet equivalent specifications established by mutual agreement of the District, the California Air Resources Board, and EPA. The CEM systems shall also be operated, maintained, and calibrated pursuant to the requirements of 40 CFR 60.7(c) and 40 CFR 60.13. [District Rules 1080, 2201, and 4354] Federally Enforceable Through Title V Permit

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43. The applicant shall install, maintain, and operate a continuous opacity monitor (COM) and shall meet the performance specification requirements in 40 CFR Part 60, Appendix B, or shall meet equivalent specifications established by mutual consent of the District, the California Air Resources Board, and EPA. [District Rules 1080, 2201, and 4101] Federally Enforceable Through Title V Permit
44. The facility shall install and maintain equipment, facilities, and systems compatible with the Districts 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
45. Upon notice by the District that the facility's CEM system is not providing polling data, the facility may continue to operate without providing data for a maximum of 30 days per calendar year provided the CEM data is sent to the District by a District-approved alternate method. [District Rule 1080] Federally Enforceable Through Title V Permit
46. {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
47. Results of the CEM system shall be averaged over the appropriate averaging period, using consecutive 15-minute samples in accordance with all applicable requirements of 40 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
48. Records of the following items shall be maintained: the occurrence and duration of any malfunction, performance testing, calibrations, checks, adjustments, and any period during which the CEM is inoperative, and the CEM emission measurements. [District Rule 1080] Federally Enforceable Through Title V Permit
49. Cylinder gas audits (CGAs) of continuous emission monitors shall be conducted quarterly, except during quarters in which relative 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
50. 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
51. Any visible emission monitoring exceedance showing air contaminant discharged into the atmosphere for a period or periods aggregating more than three minutes in any one hour which is as dark as, or darker than, Ringelmann 1 or 20% opacity shall be reported by the operator to the APCO within 96 hours. [District Rule 1080] Federally Enforceable Through Title V Permit
52. Any violation of an emission standard, as shown by the stack CEMS, shall be reported to the APCO within 96 hours of detection. [District Rule 1080] Federally Enforceable Through Title V Permit
53. The operator shall notify the APCO no later than eight hours after the detection of a breakdown of the CEMS. The operator shall inform the APCO of the intent to shutdown a CEMS at least 24 hours prior to the event. [District Rule 1080] Federally Enforceable Through Title V Permit
54. Permittee shall submit a written report 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 (averaging period used for data reporting shall correspond to the averaging period for each respective emission standard); corrective actions taken and preventative measures adopted; applicable time and data for each period during a 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 or when the CEMS has not been inoperative, repaired, or adjusted. [District Rule 1080] Federally Enforceable Through Title V Permit
55. The permittee shall monitor and record the furnace temperature daily. [District Rule 4354] Federally Enforceable Through Title V Permit

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56. The initial minimum temperature to show compliance with the VOC emission limit of this permit shall be established during the initial source test. [District Rule 4354] Federally Enforceable Through Title V Permit
57. The furnace temperature shall be maintained at or above the level for which compliance with the permitted VOC limit was demonstrated during the most recent source test. If the measured furnace temperature is less than the minimum furnace temperature limit, the permittee shall conduct a certified VOC source test within 60 days to re-establish the minimum temperature limit. In lieu of conducting a certified VOC source test, the permittee may stipulate that a violation has occurred, subject to enforcement action. The permittee must then correct the violation (return the furnace temperature to or above the minimum temperature limit), show compliance has been re-established, and resume monitoring procedures. If the deviation is a result of a qualifying breakdown condition pursuant to District Rule 1100, the permittee may fully comply with Rule 1100 in lieu of performing the notification and testing required by this condition. [District Rule 4354] Federally Enforceable Through Title V Permit
58. The permittee shall keep records of the date and time of the furnace temperature readings and the furnace temperature during the most recent source test that showed compliance with the VOC emission limit. [District Rule 4354] Federally Enforceable Through Title V Permit
59. The permittee shall install, operate, and maintain a continuous monitoring and recording system to accurately measure and record the electrostatic precipitator secondary current and secondary voltage. [District Rule 4354] Federally Enforceable Through Title V Permit
60. The average daily total power input into the electrostatic precipitator shall be calculated by multiplying the average daily secondary amperage by the average daily secondary voltage, both recorded by the continuous monitoring system. [District Rule 4354] Federally Enforceable Through Title V Permit
61. The minimum average daily total power input into the electrostatic precipitator that shows compliance with the PM10 emission limit of this permit shall be established during the initial source test. [District Rule 4354] Federally Enforceable Through Title V Permit
62. The average daily total power input of the electrostatic precipitator shall be maintained at or above the level for which compliance with the permitted PM10 limit was demonstrated during the most recent source test. If the minimum measured average daily total power input into the electrostatic precipitator is exceeded, the permittee shall conduct a certified PM10 source test within 60 days to re-establish the minimum average daily total power input limit. In lieu of conducting a certified PM10 source test, the permittee may stipulate that a violation has occurred, subject to enforcement action. The permittee must then correct the violation (return the average daily total power input to or above the minimum level), show compliance has been re-established, and resume monitoring procedures. If the deviation is a result of a qualifying breakdown condition pursuant to District Rule 1100, the permittee may fully comply with Rule 1100 in lieu of performing the notification and testing required by this condition. [District Rule 4354]
63. The permittee shall keep records of the date of the measure electrostatic precipitator average daily total power input and the minimum electrostatic precipitator daily total power input established during the most recent source test that showed compliance with the PM10 emission limit of this permit. [District Rule 4354] Federally Enforceable Through Title V Permit
64. Replacement filters numbering at least 10% of the total number of filters in the largest bin vent filter using each type of filter shall be maintained on the premises. [District Rule 2201] Federally Enforceable Through Title V Permit
65. Each bin vent filter cleaning frequency and duration shall be adjusted to optimize the control efficiency. [District Rule 2201] Federally Enforceable Through Title V Permit
66. Visible emissions from the exhaust of each bin vent filter shall not equal or exceed 5% opacity for a period or periods aggregating more than three minutes in any one hour. [District Rule 2201] Federally Enforceable Through Title V Permit
67. The throughput for each electrostatic precipitator dust silo shall not exceed 1.23 tons in any one day. [District Rule 2201] Federally Enforceable Through Title V Permit
68. PM10 emissions from each electrostatic precipitator dust silo shall not exceed 0.00034 lb/ton. [District Rule 2201] Federally Enforceable Through Title V Permit

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69. Each bin vent filter shall be equipped with a pressure differential gauge to indicate the pressure drop across the filter. The gauge shall be maintained in good working condition at all times and shall be located in an easily accessible location. [District NSR Rule] Federally Enforceable Through Title V Permit
70. The differential pressure gauge reading range for each bin vent filter shall be established per manufacturer's recommendation at time of start up inspection. [District Rule 2201] Federally Enforceable Through Title V Permit
71. The differential operating pressure across each bin vent filter shall be monitored and recorded on each day that the unit operates. [District Rule 2201] Federally Enforceable Through Title V Permit
72. Records of all maintenance of the bin vent filters, including all change outs of filter media, shall be maintained. [District Rule 2201] Federally Enforceable Through Title V Permit
73. A log of daily process weight, wt% cullet per batch, electric boosting, fuel usage and other relevant operating parameters shall be kept on the premises and shall be made available for District inspection upon request. [District Rule 2520, 9.3.2 and District NSR Rule] Federally Enforceable Through Title V Permit
74. During periods of electrostatic precipitator maintenance and furnace startup, the furnace visible emissions shall be recorded by CARB certified personnel during daylight hours using EPA Method 9 within 2 hours of electrostatic precipitator shutdown or bypass and at least three times a day. Each visible emissions evaluation shall be at least 4 hours apart. [District NSR Rule] Federally Enforceable Through Title V Permit
75. The applicant shall maintain accurate records of the time, date, cause (e.g. electrostatic precipitator maintenance, furnace startup, or furnace idle), and duration electrostatic precipitator is not in operation and result of any visible emissions testing during the period. Records shall be made available for District inspection upon request. [District Rule 1070] Federally Enforceable Through Title V Permit
76. The permittee shall maintain daily records of the total hours of operation, type and quantity of fuel used, quantity of glass pulled, the NOx emission rate (in lb/ton of glass pulled), the CO emission rate (in lb/ton of glass pulled), and the SOx emission rate (in lb/ton of glass pulled). The permittee shall also maintain records of source tests, the acceptable range for each approved key system operating parameter as established by source testing, all instances of maintenance and repair, any malfunction, and records of all periods of idling, startup, or shutdown. All records shall be maintained on the premises for a period of five years and shall be made available for District inspection upon request. [District Rules 2201 and 4354] Federally Enforceable Through Title V Permit
77. Permittee shall keep a record of the combined daily NOx emissions, in pounds, for furnaces N-593-10 (22-C), N-593-12 (22-A) and N-593-13 (22-C). [District Rule 2201] Federally Enforceable Through Title V Permit
78. Permittee shall keep a record of the combined rolling 12-month NOx and PM10 emissions for furnaces N-593-10 (22-C), N-593-12 (22-A), and N-593-13 (22-C). This record shall be updated on a monthly basis. [District Rule 2201] Federally Enforceable Through Title V Permit
79. Compliance with the conditions in the permit requirements for this unit shall be deemed compliance with District Rules 4201 and 4202. A permit shield is granted from these requirements. [District Rule 2520, 13.2] Federally Enforceable Through Title V Permit
80. The requirements of District Rule 4301 were determined to not apply to this unit. A permit shield is granted from these requirements. [District Rule 2520, 13.2] Federally Enforceable Through Title V Permit
81. 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
82. 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
83. The requirements of 40 CFR 61, Subpart N were determined to not apply to this unit. A permit shield is granted from these requirements. [District Rule 2520, 13.2] Federally Enforceable Through Title V Permit

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San Joaquin Valley
Air Pollution Control District

AUTHORITY TO CONSTRUCT

ISSUANCE DATE: DRAFT
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PERMIT NO: N-593-13-10

LEGAL OWNER OR OPERATOR: OWENS-BROCKWAY GLASS CONTAINER
MAILING ADDRESS: 14700 W SCHULTE RD
TRACY, CA 95376

LOCATION: 14700 W SCHULTE ROAD
TRACY, CA 95376

EQUIPMENT DESCRIPTION:

MODIFICATION OF A 67 MMBTU/HR GLASS MELTING OXYGEN-ENRICHED AIR-STAGING (OEAS) FURNACE #22-B WITH CONTINUOUS EMISSIONS MONITORING SYSTEM (CEMS) SHARED WITH FURNACES A AND C AT A COMMON STACK, SERVED BY AN ELECTROSTATIC PRECIPITATOR (ESP); TO REMOVE THE EXISTING SHARED ELECTROSTATIC PRECIPITATOR AND CEMS AS CONTROL DEVICES WILL NO LONGER BE SHARED; TO INSTALL A CUSTOM GEA BISCHOFF INC DRY SOX SCRUBBER AND LOWER THE SOX EMISSIONS LIMIT TO 0.9 LB/TON FOR DISTRICT RULE 4354 COMPLIANCE; TO INSTALL A GEA BISCHOFF MODEL BS 78010/5.0/2X11/0.4 ELECTROSTATIC PRECIPITATOR AND ESTABLISH A CONTROLLED PM10 LIMIT OF 0.5 LB/TON FOR DISTRICT RULE 4354 COMPLIANCE; AND TO INSTALL AN ELECTROSTATIC PRECIPITATOR DUST TRANSFER AND STORAGE OPERATION WITH TWO 125 CUBIC FOOT STORAGE SILOS EACH WITH A MET-PRO CORP FLEX-KLEEN BIN VENT FILTER

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 NSR Rule] 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. All equipment, facilities, or systems installed or used to achieve compliance with the terms and conditions of the Federal Major Stationary Source 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 52.233(g)] Federally Enforceable Through Title V Permit

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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-593-13-10 : Apr 27 2010 11:34AM - HARADERJ : Joint Inspection NOT Required

4. Particulate matter emissions shall not exceed 0.1 grains/dscf in concentration. [District Rule 4201 and 40 CFR 52.233(g)] Federally Enforceable Through Title V Permit
5. Particulate matter emissions shall not exceed the hourly rate as calculated in District Rule 4202 using the equation $E=3.59P^{0.62}$ ($P < 30$ tph) or $E=17.31P^{0.16}$ ($P > 30$ tph). [District Rule 4202 and 40 CFR 52.233(g)] Federally Enforceable Through Title V Permit
6. Sulfur compound emissions shall not exceed 0.2% by volume, 2000 ppmv, on a dry basis averaged over 15 consecutive minutes. [San Joaquin County Rule 407 and District Rule 4801] Federally Enforceable Through Title V Permit
7. 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. If the equipment or operation is subject to a more stringent visible emission standard as prescribe in a permit condition, the more stringent visible emission limitation shall supersede this condition. [District Rule 4101 and San Joaquin County Rule 401] Federally Enforceable Through Title V Permit
8. No air contaminant shall be released into the atmosphere, which causes a public nuisance [District Rule 4102]
9. {1898} The exhaust stack shall vent vertically upward. The vertical exhaust flow shall not be impeded by a rain cap (flapper ok), roof overhang, or any other obstruction. [District Rule 4102]
10. The exhaust from the glass melting furnace shall be vented through an operational SOx scrubber and electrostatic precipitator, except during periods of furnace startup (when technologically infeasible), furnace idle (when technologically infeasible), and during add-on control system maintenance. Scheduled maintenance of add-on control system shall be accomplished during periods of furnace idling whenever possible. [District Rules 2201 and 4354] Federally Enforceable Through Title V Permit
11. 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 start-up 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
12. Start-up is defined as the period of time, after initial construction of 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 purposely allowed to cool from operating temperature and molten glass is removed from the tank for the purposes of a furnace rebuild. 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
13. During startup, the permittee shall comply with the requirements of Section 5.2 of District Rule 4354. [District Rule 4354] Federally Enforceable Through Title V Permit
14. The duration of shutdown of the furnace, as measured from the time the furnace operations drop below the idle threshold (operation of the furnace at less than 25 percent of the permitted glass production capacity or fuel use capacity) to when all emissions from the furnace cease, shall not exceed 20 days. [District Rule 4354] Federally Enforceable Through Title V Permit
15. During periods when the furnace is in idle state, the glass throughput shall not exceed 50 tons per day. [District NSR Rule] Federally Enforceable Through Title V Permit
16. The emission control system shall be in operation whenever technologically feasible during furnace idling to minimize emissions. [District Rule 4354] Federally Enforceable Through Title V Permit
17. NOx, CO, VOC, SOx, and PM10 emissions during idling shall not exceed the amount as calculated using the following equation: NOx, CO, VOC, SOx, 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

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18. The PM₁₀ and SO_x emission limits of this permit shall not apply during routine maintenance of the respective add-on control systems. The routine maintenance in each calendar year shall not exceed 144 hours total for all add-on controls and routine maintenance shall be conducted in a manner consistent with good air pollution control practices for minimizing emissions. [District Rule 4354]
19. The furnace shall be fired on PUC regulated natural gas or LPG/propane fuel only. [District NSR Rule] Federally Enforceable Through Title V Permit
20. 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
21. The glass pull rate shall not exceed 340 tons during any one day. [District Rules 2201 and 4354] Federally Enforceable Through Title V Permit
22. The glass pull rate shall not exceed 124,100 tons during any 12 consecutive month period. [District NSR Rule] Federally Enforceable Through Title V Permit
23. The weight percent of cullet per batch shall not be less than 13.6%. Batch weight distribution data shall be available for District inspection during normal operating hours. [District NSR Rule] Federally Enforceable Through Title V Permit
24. NO_x emissions from the glass furnace, except during periods of start-up, shutdown, and idling, shall not exceed any of the following limits: 56.67 lb-NO_x/hr or 4.0 lb-NO_x/ton of glass pulled, based on a block 24-hour average. [District Rules 2201 and 4354] Federally Enforceable Through Title V Permit
25. SO_x emissions from the glass furnace, except during periods of start-up, shutdown, and idling, shall not exceed any of the following limits: 12.75 lb-SO_x/hr or 0.9 lb-SO_x/ton of glass pulled, based on a 30-day rolling average. [District Rules 2201 and 4354] Federally Enforceable Through Title V Permit
26. CO emissions from the glass furnace, except during periods of start-up, shutdown, and idling, shall not exceed any of the following limits: 300 ppmvd @ 8% O₂ or 1.0 lb-CO/ton of glass pulled, based on a 3-hour rolling average. [District Rules 2201 and 4354] Federally Enforceable Through Title V Permit
27. VOC emissions from the glass furnace, except during periods of start-up, shutdown, and idling, shall not exceed any of the following limits: 20 ppmvd @ 8% O₂ or 0.25 lb-VOC/ton of glass pulled, based on a 3-hour rolling average. [District Rules 2201 and 4354] Federally Enforceable Through Title V Permit
28. PM₁₀ emissions from the glass furnace, except during periods of start-up, shutdown, and idling, shall not exceed either of the following limits: 5.38 lb-PM₁₀/hr or 0.5 lb-PM₁₀/ton of glass pulled, based on a block 24-hour average. [District Rules 2201 and 4354] Federally Enforceable Through Title V Permit
29. Daily combined emissions from furnaces N-593-10 (22-C), N-593-12 (22-A), and N-593-13 (22-B) shall not exceed any of the following limits: 3,392.2 lb-NO_x/day, 300.0 lb-PM₁₀/day, and 105.0 lb-filterable PM₁₀/day. [District NSR Rule and 40 CFR 52.233(g)] Federally Enforceable Through Title V Permit
30. Combined emissions from furnaces N-593-10 (22-C), N-593-12 (22-A), and N-593-13 (22-B) computed over a 12 consecutive month period shall not exceed either of the following limits: 606.540 tons-NO_x/year and 55 tons-PM₁₀/year. [District NSR Rule] Federally Enforceable Through Title V Permit
31. All required source testing shall conform to the compliance testing procedures described in District Rule 1081. [District Rule 1081] Federally Enforceable Through Title V Permit
32. 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
33. Initial performance testing shall be conducted for VOC (ppmv and lb/ton of glass pulled), CO (ppmv and lb/ton of glass pulled), PM₁₀ (lb/ton of glass pulled and lb/hr), SO_x (lb/ton of glass pulled and lb/hr), and NO_x (lb/ton of glass pulled) emissions within 60 days of reaching maximum production or within 180 days of implementing the modifications of this ATC, whichever is first. [District Rule 2201] Federally Enforceable Through Title V Permit

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34. Annual performance testing shall be conducted for VOC (ppmv and lb/ton of glass pulled), CO (ppmv and lb/ton of glass pulled), PM10 (lb/ton of glass pulled and lb/hr), SOx (lb/ton of glass pulled and lb/hr), and NOx (lb/ton of glass pulled) emissions at least once every calendar year. To qualify as an annual performance test, the test date shall be at least 6 months after, and not more than 18 months after the initial and the previous annual performance test. [District NSR Rule, Rule 4354, and 40 CFR 52.233(g)] Federally Enforceable Through Title V Permit
35. Furnace conditions during source testing shall be representative of normal operations, with a glass production rate equal to or greater than 60 percent of the permitted glass production capacity. The source test may be conducted at a glass production rate lower than 60 percent of the permitted glass production rate, provided that the permittee demonstrates that the proposed alternative glass production rate is representative of normal operations and the proposed alternative glass production rate is approved by the APCO in writing. [District Rule 4354] Federally Enforceable Through Title V Permit
36. 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 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
37. Performance testing shall be conducted using following test methods: (1) Oxides of Nitrogen: EPA Method 7E, EPA Method 19, or ARB Method 100; (2) Carbon Monoxide: EPA Method 10, or ARB Method 100; (3) VOC (ppmv): EPA Method 25A expressed in terms of carbon, or ARB Method 100, EPA Method 18 or ARB method 422 to determine emissions of exempt compounds; (4) Stack Gas Oxygen, Carbon Dioxide, Excess Air, and Dry Molecular Weight: EPA Method 3 or 3A, or ARB Method 100; (5) Oxides of Sulfur: EPA Method 6C, EPA Method 8, or ARB Method 100; (6) Filterable PM10: EPA Method 5, EPA Method 201, or EPA Method 201A. An operator choosing EPA Method 5 shall count all PM collected as PM10; (7) Condensable PM10: EPA Method 202 with the following procedures, (7a) Purge the impinger with dry nitrogen for one hour. The one hour purge with dry nitrogen shall be performed as soon as possible after the final leak check of the system, (7b) Neutralize the inorganic portion to a pH of 7.0. Use the procedure, "Determination of NH4 Retained in Sample by Titration" described in Method 202 to neutralize sulfuric acid, (7c) Evaporate the last 1 ml of the inorganic fraction by air drying following evaporation of the bulk of the impinger water in a 105 degrees C oven as described in the first sentence of the Method 202 section titled "Inorganic Fraction Weight Determination". [District NSR Rule, Districts Rule 4354 and 2520, and 40 CFR 52.233(g)] Federally Enforceable Through Title V Permit
38. In lieu of performing a source test for PM10, the results of CARB Method 5 or EPA Methods 5 and 8 may be used for measuring PM10 emissions limit. If this option is used, then all of the particulate emissions will be considered to be PM10. [District NSR Rule] Federally Enforceable Through Title V Permit
39. 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 exceedance of 100 hours. [District Rule 1081] Federally Enforceable Through Title V Permit
40. For source testing purposes, arithmetic average of three 30-consecutive-minute test runs shall be used to determine compliance with NOx, CO, VOC, and SOx emission limits. [District Rules 2201, 4354, 6.4.4] Federally Enforceable Through Title V Permit
41. For source testing purposes, arithmetic average of three 60-consecutive-minute test runs shall be used to determine compliance with PM10 emission limits. [District Rule 4354, 6.4.5] Federally Enforceable Through Title V Permit
42. The applicant shall install, maintain, and operate a continuous emissions monitoring system (CEMS) to measure stack NOx, SOx, CO, O2 concentration (if required for compliance determination), and stack gas volumetric flow rate and shall meet the performance specification requirements in 40 CFR, Part 60, Appendix B, Performance Specifications 2, 3, and 4, or shall meet equivalent specifications established by mutual agreement of the District, the California Air Resources Board, and EPA. The CEM systems shall also be operated, maintained, and calibrated pursuant to the requirements of 40 CFR 60.7(c) and 40 CFR 60.13. [District Rules 1080, 2201, and 4354] Federally Enforceable Through Title V Permit

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43. The applicant shall install, maintain, and operate a continuous opacity monitor (COM) and shall meet the performance specification requirements in 40 CFR Part 60, Appendix B, or shall meet equivalent specifications established by mutual consent of the District, the California Air Resources Board, and EPA. [District Rules 1080, 2201, and 4101] Federally Enforceable Through Title V Permit
44. 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
45. Upon notice by the District that the facility's CEM system is not providing polling data, the facility may continue to operate without providing data for a maximum of 30 days per calendar year provided the CEM data is sent to the District by a District-approved alternate method. [District Rule 1080] Federally Enforceable Through Title V Permit
46. {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
47. Results of the CEM system shall be averaged over the appropriate averaging period, using consecutive 15-minute samples in accordance with all applicable requirements of 40 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
48. Records of the following items shall be maintained: the occurrence and duration of any malfunction, performance testing, calibrations, checks, adjustments, and any period during which the CEM is inoperative, and the CEM emission measurements. [District Rule 1080] Federally Enforceable Through Title V Permit
49. Cylinder gas audits (CGAs) of continuous emission monitors shall be conducted quarterly, except during quarters in which relative 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
50. 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
51. Any visible emission monitoring exceedance showing air contaminant discharged into the atmosphere for a period or periods aggregating more than three minutes in any one hour which is as dark as, or darker than, Ringelmann 1 or 20% opacity shall be reported by the operator to the APCO within 96 hours. [District Rule 1080] Federally Enforceable Through Title V Permit
52. Any violation of an emission standard, as shown by the stack CEMS, shall be reported to the APCO within 96 hours of detection. [District Rule 1080] Federally Enforceable Through Title V Permit
53. The operator shall notify the APCO no later than eight hours after the detection of a breakdown of the CEMS. The operator shall inform the APCO of the intent to shutdown a CEMS at least 24 hours prior to the event. [District Rule 1080] Federally Enforceable Through Title V Permit
54. Permittee shall submit a written report 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 (averaging period used for data reporting shall correspond to the averaging period for each respective emission standard); corrective actions taken and preventative measures adopted; applicable time and data for each period during a 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 or when the CEMS has not been inoperative, repaired, or adjusted. [District Rule 1080] Federally Enforceable Through Title V Permit
55. The permittee shall monitor and record the furnace temperature daily. [District Rule 4354] Federally Enforceable Through Title V Permit

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56. The initial minimum furnace temperature to show compliance with the VOC emission limit of this permit shall be established during the initial source test. [District Rule 4354] Federally Enforceable Through Title V Permit
57. The furnace temperature shall be maintained at or above the level for which compliance with the permitted VOC limit was demonstrated during the most recent source test. If the measured furnace temperature is less than the minimum furnace temperature limit, the permittee shall conduct a certified VOC source test within 60 days to re-establish the minimum temperature limit. In lieu of conducting a certified VOC source test, the permittee may stipulate that a violation has occurred, subject to enforcement action. The permittee must then correct the violation (return the furnace temperature to or above the minimum temperature limit), show compliance has been re-established, and resume monitoring procedures. If the deviation is a result of a qualifying breakdown condition pursuant to District Rule 1100, the permittee may fully comply with Rule 1100 in lieu of performing the notification and testing required by this condition. [District Rule 4354] Federally Enforceable Through Title V Permit
58. The permittee shall keep records of the date and time of the furnace temperature readings and the furnace temperature during the most recent source test that showed compliance with the VOC emission limit. [District Rule 4354] Federally Enforceable Through Title V Permit
59. The permittee shall install, operate, and maintain a continuous monitoring and recording system to accurately measure and record the electrostatic precipitator secondary current and secondary voltage. [District Rule 4354] Federally Enforceable Through Title V Permit
60. The average daily total power input into the electrostatic precipitator shall be calculated by multiplying the average daily secondary amperage by the average daily secondary voltage, both recorded by the continuous monitoring system. [District Rule 4354] Federally Enforceable Through Title V Permit
61. The minimum average daily total power input into the electrostatic precipitator that shows compliance with the PM10 emission limit of this permit shall be established during the initial source test. [District Rule 4354] Federally Enforceable Through Title V Permit
62. The average daily total power input of the electrostatic precipitator shall be maintained at or above the level for which compliance with the permitted PM10 limit was demonstrated during the most recent source test. If the minimum measured average daily total power input into the electrostatic precipitator is exceeded, the permittee shall conduct a certified PM10 source test within 60 days to re-establish the minimum average daily total power input limit. In lieu of conducting a certified PM10 source test, the permittee may stipulate that a violation has occurred, subject to enforcement action. The permittee must then correct the violation (return the average daily total power input to or above the minimum level), show compliance has been re-established, and resume monitoring procedures. If the deviation is a result of a qualifying breakdown condition pursuant to District Rule 1100, the permittee may fully comply with Rule 1100 in lieu of performing the notification and testing required by this condition. [District Rule 4354]
63. The permittee shall keep records of the date of the measure electrostatic precipitator average daily total power input and the minimum electrostatic precipitator daily total power input established during the most recent source test that showed compliance with the PM10 emission limit of this permit. [District Rule 4354] Federally Enforceable Through Title V Permit
64. Replacement filters numbering at least 10% of the total number of filters in the largest bin vent filter using each type of filter shall be maintained on the premises. [District Rule 2201] Federally Enforceable Through Title V Permit
65. Each bin vent filter cleaning frequency and duration shall be adjusted to optimize the control efficiency. [District Rule 2201] Federally Enforceable Through Title V Permit
66. Visible emissions from the exhaust of each bin vent filter shall not equal or exceed 5% opacity for a period or periods aggregating more than three minutes in any one hour. [District Rule 2201] Federally Enforceable Through Title V Permit
67. The throughput for each electrostatic precipitator dust silo shall not exceed 1.64 tons in any one day. [District Rule 2201] Federally Enforceable Through Title V Permit
68. PM10 emissions from each electrostatic precipitator dust silo shall not exceed 0.00034 lb/ton. [District Rule 2201] Federally Enforceable Through Title V Permit

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CONDITIONS CONTINUE ON NEXT PAGE

69. Each bin vent filter shall be equipped with a pressure differential gauge to indicate the pressure drop across the filter. The gauge shall be maintained in good working condition at all times and shall be located in an easily accessible location. [District NSR Rule] Federally Enforceable Through Title V Permit
70. The differential pressure gauge reading range for each bin vent filter shall be established per manufacturer's recommendation at time of start up inspection. [District Rule 2201] Federally Enforceable Through Title V Permit
71. The differential operating pressure across each bin vent filter shall be monitored and recorded on each day that the unit operates. [District Rule 2201] Federally Enforceable Through Title V Permit
72. Records of all maintenance of each bin vent filter, including all change outs of filter media, shall be maintained. [District Rule 2201] Federally Enforceable Through Title V Permit
73. A log of daily process weight, wt% cullet per batch, electric boosting, fuel usage and other relevant operating parameters shall be kept on the premises and shall be made available for District inspection upon request. [District Rule 2520, 9.3.2 and District NSR Rule] Federally Enforceable Through Title V Permit
74. During periods of electrostatic precipitator maintenance and furnace startup, the furnace visible emissions shall be recorded by CARB certified personnel during daylight hours using EPA Method 9 within 2 hours of electrostatic precipitator shutdown or bypass and at least three times a day. Each visible emissions evaluation shall be at least 4 hours apart. [District NSR Rule] Federally Enforceable Through Title V Permit
75. The applicant shall maintain accurate records of the time, date, cause (e.g. electrostatic precipitator maintenance, furnace startup, or furnace idle), and duration electrostatic precipitator is not in operation and result of any visible emissions testing during the period. Records shall be made available for District inspection upon request. [District Rule 1070] Federally Enforceable Through Title V Permit
76. The permittee shall maintain daily records of the total hours of operation, type and quantity of fuel used, quantity of glass pulled, the NOx emission rate (in lb/ton of glass pulled), the CO emission rate (in lb/ton of glass pulled), and the SOx emission rate (in lb/ton of glass pulled). The permittee shall also maintain records of source tests, the acceptable range for each approved key system operating parameter as established by source testing, all instances of maintenance and repair, any malfunction, and records of all periods of idling, startup, or shutdown. All records shall be maintained on the premises for a period of five years and shall be made available for District inspection upon request. [District Rules 2201 and 4354] Federally Enforceable Through Title V Permit
77. Permittee shall keep a record of the combined daily NOx emissions, in pounds, for furnaces N-593-10 (22-C), N-593-12 (22-A) and N-593-13 (22-C). [District Rule 2201] Federally Enforceable Through Title V Permit
78. Permittee shall keep a record of the combined rolling 12-month NOx and PM10 emissions for furnaces N-593-10 (22-C), N-593-12 (22-A), and N-593-13 (22-C). This record shall be updated on a monthly basis. [District Rule 2201] Federally Enforceable Through Title V Permit
79. Compliance with the conditions in the permit requirements for this unit shall be deemed compliance with District Rules 4201 and 4202. A permit shield is granted from these requirements. [District Rule 2520, 13.2] Federally Enforceable Through Title V Permit
80. The requirements of District Rule 4301 were determined to not apply to this unit. A permit shield is granted from these requirements. [District Rule 2520, 13.2] Federally Enforceable Through Title V Permit
81. 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
82. 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
83. The requirements of 40 CFR 61, Subpart N were determined to not apply to this unit. A permit shield is granted from these requirements. [District Rule 2520, 13.2] Federally Enforceable Through Title V Permit

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San Joaquin Valley
Air Pollution Control District

AUTHORITY TO CONSTRUCT

ISSUANCE DATE: DRAFT
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PERMIT NO: N-593-42-1

LEGAL OWNER OR OPERATOR: OWENS-BROCKWAY GLASS CONTAINER
MAILING ADDRESS: 14700 W SCHULTE RD
TRACY, CA 95376

LOCATION: 14700 W SCHULTE ROAD
TRACY, CA 95376

EQUIPMENT DESCRIPTION:
TRONA/DRY REAGENT RECEIVING AND STORAGE OPERATION WITH A 2800 CUBIC FOOT STORAGE SILO
SERVED BY A MET-PRO CORP FLEX-KLEEN VENT FILTER (OR EQUIVALENT)

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 NSR Rule] 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. {98} No air contaminant shall be released into the atmosphere which causes a public nuisance. [District Rule 4102]
4. 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 as dark as, or darker than, Ringelmann 1 or 20% opacity. [District Rule 4101] Federally Enforceable Through Title V Permit
5. Visible emissions from the exhaust of the bin vent filter shall not equal or exceed 5% opacity for a period or periods aggregating more than three minutes in any one hour. [District Rule 2201] Federally Enforceable Through Title V Permit
6. All ducting and control equipment shall be in good working order to prevent fugitive particulate emissions. [District Rule 2201] 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-593-42-1 : Apr 27 2010 11:34AM - HARADERJ : Joint Inspection NOT Required

7. All filters shall be properly maintained and must be in place during the receiving of trona/dry reagent. [District Rule 2201] Federally Enforceable Through Title V Permit
8. Replacement filters numbering at least 10% of the total number of filters in the largest bin vent filter using each type of filter shall be maintained on the premises. [District Rule 2201] Federally Enforceable Through Title V Permit
9. The bin vent filter cleaning frequency and duration shall be adjusted to optimize the control efficiency. [District Rule 2201] Federally Enforceable Through Title V Permit
10. The quantity of trona/dry reagent received shall not exceed 4.97 tons in any one day. [District Rule 2201] Federally Enforceable Through Title V Permit
11. PM10 emissions from the trona/dry reagent receiving operation shall not exceed 0.00034 lb/ton. [District Rule 2201] Federally Enforceable Through Title V Permit
12. Permittee shall keep a record of the daily quantity of trona/dry reagent received, in tons. [District Rule 2201] Federally Enforceable Through Title V Permit
13. The bin vent filter shall be equipped with a pressure differential gauge to indicate the pressure drop across the bags. The gauge shall be maintained in good working condition at all times and shall be located in an easily accessible location. [District NSR Rule] Federally Enforceable Through Title V Permit
14. The differential pressure gauge reading range for the bin vent filter shall be established per manufacturer's recommendation at time of start up inspection. [District Rule 2201] Federally Enforceable Through Title V Permit
15. The differential operating pressure across the bin vent filter shall be monitored and recorded on each day that the baghouse operates. [District Rule 2201] Federally Enforceable Through Title V Permit
16. Records of all maintenance of the bin vent filter, including all change outs of filter media, shall be maintained. [District Rule 2201] Federally Enforceable Through Title V Permit
17. All records shall be retained for a period of at least 5 years and shall be made available for District inspection upon request. [District Rule 1070] Federally Enforceable Through Title V Permit

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APPENDIX II
Current Permits to Operate

San Joaquin Valley Air Pollution Control District

PERMIT UNIT: N-593-10-12

EXPIRATION DATE: 07/31/2012

EQUIPMENT DESCRIPTION:

60 MMBTU/HR GLASS MELTING FURNACE #22-C WITH A CONTINUOUS EMISSIONS MONITORING SYSTEM (CEMS) SHARED WITH FURNACES A AND B AT A COMMON STACK, SERVED BY AN ELECTROSTATIC PRECIPITATOR (ESP)

PERMIT UNIT REQUIREMENTS

1. All equipment, facilities, or systems installed or used to achieve compliance with the terms and conditions of the Federal Major Stationary Source 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 52.233(g)] Federally Enforceable Through Title V Permit
2. The electrostatic precipitator served by particulate recycling system with baghouse shall be shared by N-593-10, N-593-12 and N-593-13. [District NSR Rule] Federally Enforceable Through Title V Permit
3. During periods when furnace is in idle state, the glass throughput shall not exceed 50 tons per day. [District NSR Rule] Federally Enforceable Through Title V Permit
4. The exhaust from the glass melting furnace shall be vented through an operational electrostatic precipitator served by particulate recycling system with baghouse on permit N-593-10, except during periods of furnace startup, furnace idle, and electrostatic precipitator maintenance. Scheduled electrostatic precipitator maintenance shall be accomplished during periods of furnace idling whenever possible. [District NSR Rule] Federally Enforceable Through Title V Permit
5. During periods of electrostatic precipitator maintenance and furnace startup, the furnace visible emissions shall be recorded by CARB certified personnel during daylight hours using EPA Method 9 within 2 hours of electrostatic precipitator shutdown or bypass and at least three times a day. Each visible emissions evaluation shall be at least 4 hours apart. [District NSR Rule] Federally Enforceable Through Title V Permit
6. The applicant shall maintain accurate records of the time, date, cause (e.g. electrostatic precipitator maintenance, furnace startup, or furnace idle), and duration electrostatic precipitator is not in operation and result of any visible emissions testing during the period. Records shall be made available for District inspection upon request. [District Rule 1070] Federally Enforceable Through Title V Permit
7. 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
8. The furnace shall be fired on PUC regulated natural gas or LPG/propane fuel only. [District NSR Rule] Federally Enforceable Through Title V Permit
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. Process weight (based on input to the furnace) shall not exceed 146,000 tons during any 12 consecutive month period. [District NSR Rule] 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 weight percent of cullet per batch shall not be less than 17.5%. Batch weight distribution data shall be available for District inspection during normal operating hours. [District NSR Rule] Federally Enforceable Through Title V Permit
12. Particulate matter emissions shall not exceed 0.1 grains/dscf in concentration. [District Rule 4201 and 40 CFR 52.233(g)] Federally Enforceable Through Title V Permit
13. Particulate matter emissions shall not exceed the hourly rate as calculated in District Rule 4202 using the equation $E=3.59P^{0.62}$ ($P < 30$ tph) or $E=17.31P^{0.16}$ ($P > 30$ tph). [District Rule 4202 and 40 CFR 52.233(g)] Federally Enforceable Through Title V Permit
14. Particulate matter emissions shall not exceed 17.5 lb/hr. [40 CFR 52.233(g)] Federally Enforceable Through Title V Permit
15. Sulfur compound emissions shall not exceed 0.2% by volume, 2000 ppmv, on a dry basis averaged over 15 consecutive minutes. [San Joaquin County Rule 407 and District Rule 4801] Federally Enforceable Through Title V Permit
16. Except during furnace idling, shutdown, and startup, the aggregated NOx emissions shall not exceed 3.6 lb-NOx/ton of glass pulled (based on a block 24-hour average). Aggregated NOx emissions are the NOx emissions as measured at the common stack divided by the sum of the daily glass pulled from permit units N-593-10 (22-C), N-593-12 (22-A), and N-593-13 (22-B). [District Rule 4354, 9.0, 9.4, and 9.7.1] Federally Enforceable Through Title V Permit
17. Daily combined emissions from furnaces N-593-10 (22-C), N-593-12 (22-A), and N-593-13 (22-B) shall not exceed any of the following limits: 3,392.2 lbs-NOx/day, 1,867.0 lbs-SOx/day, 300.0 lbs-PM10/day, and 105.0 lbs-filterable PM10/day. [District NSR Rule and 40 CFR 52.233(g)] Federally Enforceable Through Title V Permit
18. Combined emissions from furnaces N-593-10 (22-C), N-593-12 (22-A), and N-593-13 (22-B) computed over a 12 consecutive month period shall not exceed any of the following limits: 606.540 tons-NOx/year, 295 tons-SOx/year, and 55 tons-PM10/year. [District NSR Rule] Federally Enforceable Through Title V Permit
19. Emissions from this furnace shall not exceed any of the following limits: 69.3 lbs-NOx/hr, 6.59 lbs-PM10/hr (controlled) nor 0.9 lb-PM10/ton (uncontrolled), 58.9 lbs-SOx/hr, 300 ppmv CO @ 8% O2, or 20 ppmv VOC @ 8% O2, all based on three hour averages. [District NSR Rule] Federally Enforceable Through Title V Permit
20. Combined CO emissions from furnaces N-593-10 (22-C), N-593-12 (22-A), and N-593-13 (22-B) shall not exceed 300 ppmv @ 8% O2 nor 1.0 lb-CO/ton of glass pulled, based on a three hour average. [District NSR Rule and Rule 4354] Federally Enforceable Through Title V Permit
21. Combined VOC emissions from furnaces N-593-10 (22-C), N-593-12 (22-A), and N-593-13 (22-B) shall not exceed 20 ppmv @ 8% O2 nor 0.25 lb-VOC/ton of glass pulled, based on a three hour average [District NSR Rule and Rule 4354] Federally Enforceable Through Title V Permit
22. Daily combined emission rates for NOx and SOx shall be measured by the CEMS and daily emission limits for PM10, VOC and CO shall be measured by multiplying the hourly source test emission rates by the number of hours per day. Hourly emission rates while source testing shall be determined using the arithmetic mean of the test runs as outlined in District Rule 1081-"Source Sampling" section 6.0. [District NSR Rule and Rule 1081] Federally Enforceable Through Title V Permit
23. NOx, CO, and VOC emission limitations of District Rule 4354 shall not apply during periods of start-up, shutdown, and idling, as defined by Rule 4354, 3.0. Permittee shall notify the District at least 24 hours before initiating idling, shutdown and startup and this notification shall include: 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, 4.2, 6.7] 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.

24. Annual performance testing shall be conducted for VOC (ppmv), CO (lb/ton), PM10, SOx (ppmv and lb/hr limits from the electrostatic precipitator), and NOx (lb NOx/tons of glass pulled calculated according to Rule 4354, 8.1) emissions at the common stack at least once every calendar year. To qualify as an annual performance test, the test date shall be at least 6 months after, and not more than 18 months after the initial and the previous annual performance test. [District NSR Rule, Rule 1070, Rule 4354, 6.4, and 40 CFR 52.233(g)] Federally Enforceable Through Title V Permit
25. Performance testing shall be conducted using following test methods: EPA Method 201A in conjunction with EPA Method 202, or EPA Methods 201 in conjunction with EPA Method, or CARB Method 501 in conjunction with CARB Method 5 for PM10; EPA Method 25A (expressed in terms of carbon) in conjunction with EPA Method 18 for VOCs; EPA Method 10 or CARB Method 100 for CO; EPA Method 6C or CARB Method 100 for SOx; EPA Method 7E or CARB Method 100 for NOx; EPA Method 3, 3A, or CARB Method 100 for stack gas oxygen; and EPA Method 2 for stack gas velocity or volumetric flow rate. [District NSR Rule, Rule 4354, 6.5.1, Rule 2520, 9.4.2, and 40 CFR 52.233(g)] Federally Enforceable Through Title V Permit
26. In lieu of performing a source test for PM10, the results of CARB Method 5 or EPA Methods 5 and 8 may be used for measuring PM10 emissions limit. If this option is used, then all of the particulate emissions will be considered to be PM10. [District NSR Rule] Federally Enforceable Through Title V Permit
27. 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 exceedance of 100 hours. [District Rule 1081] Federally Enforceable Through Title V Permit
28. Source testing shall be conducted by a CARB-certified source testing contractor. Source testing shall be conducted using the methods and procedures approved by the District. The District must be notified 30 days prior to any source test, and a source test plan must be submitted for approval at least 15 days prior to source testing. The results of each source test shall be submitted to the District within 60 days after the source test date. [District Rule 1081] Federally Enforceable Through Title V Permit
29. All required source testing shall conform to the compliance testing procedures described in District Rule 1081. [District Rule 1081] Federally Enforceable Through Title V Permit
30. Source test results shall be representative of operations equal to or greater than 60 percent of the permitted production capacity or fuel use capacity for each furnace as stated in the Permit to Operate. [District Rule 4354, 6.5.2] Federally Enforceable Through Title V Permit
31. Any visible emission monitoring exceedance showing air contaminant discharged into the atmosphere for a period or periods aggregating more than three minutes in any one hour which is as dark as, or darker than, Ringelmann 1 or 20% opacity shall be reported by the operator to the APCO within 96 hours. [District Rule 1080] Federally Enforceable Through Title V Permit
32. 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. This system shall be made available to the District once the re-bricking of furnaces 22-A and 22-B is complete. [District Rule 1080]
33. 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]
34. The electrostatic precipitator stack shall be equipped with an operational Continuous Emission Monitor (CEM) for NOx (as NO2) and SOx (as SO2) for monitoring of furnaces N-593-10 (22-C), N-593-12 (22-A), & N-593-13 (22-B) and shall be measured on an hourly basis. The monitoring device shall have a continuous recording device, and all records shall be kept on site. [District NSR Rule, Rule 1080, and Rule 4354, 5.8] Federally Enforceable Through Title V Permit
35. The electrostatic precipitator stack shall be equipped with an operational continuous opacity monitoring and recording system. [District Rules 1080 and 4101] Federally Enforceable Through Title V Permit

PERMIT UNIT REQUIREMENTS CONTINUE ON NEXT PAGE

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36. The CEMS shall comply with the requirements of 40 Code of Federal Regulations (CFR) Part 51, 40 CFR Parts 60.7 and 60.13, 40 CFR Part 60 Appendix B (Performance Specifications) and Appendix F (Quality Assurance Procedures), and applicable sections of Rule 1080 (Stack Monitoring). [District Rules 1080 and 4354, 5.8 and 6.6.1] Federally Enforceable Through Title V Permit
37. An exceedance of NO_x emission limit as indicated by the CEMS shall be reported by the operator to the APCO within 24 hours. The notification shall include 1) name and location of the facility, 2) identification of furnace(s) causing the exceedances, 3) calculation of actual NO_x, CO and VOC emissions, and 4) corrective actions and schedules to complete the work. [District Rule 4354, 9.6.1 and District Rule 1080] Federally Enforceable Through Title V Permit
38. The operator shall notify the APCO no later than eight hours after the detection of a breakdown of the CEMS. The operator shall inform the APCO of the intent to shut down the CEMS at least 24 hours prior to the event. [District Rule 1080] Federally Enforceable Through Title V Permit
39. 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]
40. Cylinder gas audits (CGAs) of continuous emission monitors shall be conducted quarterly, except during quarters in which relative 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]
41. 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]
42. The permittee shall maintain daily records of total hours of operation, type and quantity of fuel used, quantity of glass pulled, NO_x emission rate (in lb/ton of glass pulled), and aggregated NO_x emissions. The permittee shall also maintain records of source tests and all operating parameters established during the initial source test, all instances of maintenance and repair, any malfunction, as well as all periods of idling, startup, and shutdown. All records shall be maintained on the premises for a period of at least five years and shall be made available during normal business hours Monday through Friday for District inspection upon request. [District Rule 2201 and District Rule 4354, 6.3.2] Federally Enforceable Through Title V Permit
43. 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]
44. Compliance with the conditions in the permit requirements for this unit shall be deemed compliance with District Rules 4201 and 4202. A permit shield is granted from these requirements. [District Rule 2520, 13.2] Federally Enforceable Through Title V Permit
45. The requirements of District Rule 4301 were determined to not apply to this unit. A permit shield is granted from these requirements. [District Rule 2520, 13.2] Federally Enforceable Through Title V Permit
46. 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

PERMIT UNIT REQUIREMENTS CONTINUE ON NEXT PAGE

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

47. 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
48. 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
49. The requirements of 40 CFR 61, Subpart N were determined to not apply to this unit. A permit shield is granted from these requirements. [District Rule 2520, 13.2] Federally Enforceable Through Title V Permit
50. A log of daily process weight, wt% cullet per batch, electric boosting, fuel usage and other relevant operating parameters shall be kept on the premises and shall be made available for District inspection upon request. [District Rule 2520, 9.3.2 and District NSR Rule] Federally Enforceable Through Title V Permit
51. The permittee shall maintain accurate records of the electrostatic precipitator voltage and current readings on a daily basis and should compare the readings with the acceptable range of current and voltage levels established during the most recent annual PM10 source test. Records of the daily readings, the acceptable range established from readings during source testing, and the calculations used to establish the acceptable range shall be kept on the premises for a minimum of five years and shall be made available for District inspection upon request. [District NSR Rule and Rule 2520, 9.4.2] Federally Enforceable Through Title V Permit

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

San Joaquin Valley Air Pollution Control District

PERMIT UNIT: N-593-12-10

EXPIRATION DATE: 07/31/2012

EQUIPMENT DESCRIPTION:

29 MMBTU/HR GLASS MELTING OXYGEN-ENRICHED AIR-STAGING (OEAS) FURNACE #22-A WITH A CONTINUOUS EMISSIONS MONITORING SYSTEM (CEMS) SHARED WITH FURNACES B AND C AT A COMMON STACK, SERVED BY AN ELECTROSTATIC PRECIPITATOR (ESP)

PERMIT UNIT REQUIREMENTS

1. 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
2. During periods when furnace is in idle state, the glass throughput shall not exceed 50 tons per day. [District NSR Rule] Federally Enforceable Through Title V Permit
3. The exhaust from the glass melting furnace shall be vented through an operational electrostatic precipitator served by particulate recycling system with baghouse on permit N-593-10, except during periods of furnace startup, furnace idle, and electrostatic precipitator maintenance. Scheduled electrostatic precipitator maintenance shall be accomplished during periods of furnace idling whenever possible. [District NSR Rule] Federally Enforceable Through Title V Permit
4. During periods of electrostatic precipitator maintenance and furnace startup, the furnace visible emissions shall be recorded by CARB certified personnel during daylight hours using EPA Method 9 within 2 hours of electrostatic precipitator shutdown or bypass and at least three times a day. Each visible emissions evaluation shall be at least 4 hours apart. [District NSR Rule] Federally Enforceable Through Title V Permit
5. The applicant shall maintain accurate records of the time, date, cause (e.g. electrostatic precipitator maintenance, furnace startup, or furnace idle), and duration electrostatic precipitator is not in operation and result of any visible emissions testing during the period. Records shall be made available for District inspection upon request. [District Rule 1070] Federally Enforceable Through Title V Permit
6. 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
7. The furnace shall be fired on PUC regulated natural gas or LPG/propane fuel only. [District NSR Rule] 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. The total startup time, as defined in §3.22 of District Rule 4354 (Glass Melting Furnaces), shall not exceed 40 days. [District Rule 4354, 5.2.1] Federally Enforceable Through Title V Permit
10. During the startup period, the permittee shall comply with the requirements of Section 5.2 of District Rule 4354. [District Rule 4354, 5.2] Federally Enforceable Through Title V Permit

PERMIT UNIT REQUIREMENTS CONTINUE ON NEXT PAGE

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11. The emission control system shall be in operation as soon as technologically feasible during the startup period to minimize emissions. [District Rule 4354, 5.2.3] Federally Enforceable Through Title V Permit
12. The duration of shutdown, as measured from the time the furnace operations drop below the idle threshold specified in Section 3.9 of District Rule 4354 to when all emissions from the furnace cease, shall not exceed 20 days. [District Rule 4354, 5.3.1] Federally Enforceable Through Title V Permit
13. The emission control system shall be in operation whenever technologically feasible during shutdown to minimize emissions. [District Rule 4354, 5.3.2] Federally Enforceable Through Title V Permit
14. The emission control system shall be in operation whenever technologically feasible during furnace idling to minimize emissions. [District Rule 4354, 5.4.1] Federally Enforceable Through Title V Permit
15. Process weight (based on input to the furnace) shall not exceed 87,235 tons during any 12 consecutive month period. [District NSR Rule] Federally Enforceable Through Title V Permit
16. The weight percent of cullet per batch shall not be less than 13.6%. Batch weight distribution data shall be available for District inspection during normal operating hours. [District NSR Rule] Federally Enforceable Through Title V Permit
17. Particulate matter emissions shall not exceed 0.1 grains/dscf in concentration. [District Rule 4201] Federally Enforceable Through Title V Permit
18. Particulate matter emissions shall not exceed the hourly rate as calculated in District Rule 4202 using the equation $E=3.59P^{0.62}$ ($P < 30$ tph) or $E=17.31P^{0.16}$ ($P > 30$ tph). [District Rule 4202] Federally Enforceable Through Title V Permit
19. Sulfur compound emissions shall not exceed 0.2% by volume, 2000 ppmv, on a dry basis averaged over 15 consecutive minutes. [San Joaquin County Rule 407 and District Rule 4801] Federally Enforceable Through Title V Permit
20. Except during furnace idling, shutdown, and startup, the aggregated NOx emissions shall not exceed 3.6 lb-NOx/ton of glass pulled (based on a block 24-hour average). Aggregated NOx emission are the NOx emissions as measured at the common stack divided by the sum of the daily glass pulled from permit units N-593-10 (22-C), N-593-12 (22-A), and N-593-13 (22-B). [District Rule 4354, 9.0, 9.4, and 9.7.1] Federally Enforceable Through Title V Permit
21. Daily combined emissions from furnaces N-593-10 (22-C), N-593-12 (22-A), and N-593-13 (22-B) shall not exceed any of the following limits: 3,392.0 lbs-NOx/day, 1,867.0 lbs-SOx/day, 300.0 lbs-PM10/day, and 105.0 lbs-filterable PM10/day. [District NSR Rule] Federally Enforceable Through Title V Permit
22. Combined emissions from furnaces N-593-10 (22-C), N-593-12 (22-A), and N-593-13 (22-B) computed over a 12 consecutive month period shall not exceed any of the following limits: 606.540 tons-NOx/year, 295 tons-SOx/year, and 55 tons-PM10/year. [District NSR Rule] Federally Enforceable Through Title V Permit
23. Emissions from this furnace shall not exceed any of the following limits: 54.8 lbs-NOx/hr, 3.78 lbs-PM10/hr (controlled) nor 0.9 lb-PM10/ton (uncontrolled), 33.9 lbs-SOx/hr, 1.0 lb-CO/ton of glass pulled nor 300 ppmv @ 8% O2, or 0.25 lb-VOC/ton of glass pulled nor 20 ppmv @ 8% O2, all based on three hour averages. [District NSR Rule] Federally Enforceable Through Title V Permit
24. Combined CO emissions from furnaces N-593-10 (22-C), N-593-12 (22-A), and N-593-13 (22-B) shall not exceed 300 ppmv @ 8% O2 nor 1.0 lb-CO/ton of glass pulled, based on a three hour average. [District NSR Rule and Rule 4354] Federally Enforceable Through Title V Permit
25. Combined VOC emissions from furnaces N-593-10 (22-C), N-593-12 (22-A), and N-593-13 (22-B) shall not exceed 20 ppmv @ 8% O2 nor 0.25 lb-VOC/ton of glass pulled, based on a three hour average. [District NSR Rule and Rule 4354] 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.

26. Daily combined emission rates for NO_x and SO_x shall be measured by the CEMS and daily emission limits for PM₁₀, VOC and CO shall be measured by multiplying the hourly source test emission rates by the number of hours per day. Hourly emission rates while source testing shall be determined using the arithmetic mean of the test runs as outlined in District Rule 1081-"Source Sampling" section 6.0. [District NSR Rule and Rule 1081] Federally Enforceable Through Title V Permit
27. NO_x, CO, and VOC emission limitations of District Rule 4354 shall not apply during periods of start-up, shutdown, and idling, as defined by Rule 4354, 3.0. Permittee shall notify the District at least 24 hours before initiating idling, shutdown and startup and this notification shall include: 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, 4.2, 6.7] Federally Enforceable Through Title V Permit
28. Annual performance testing shall be conducted for VOC (ppmv), CO (lb/ton), PM₁₀, SO_x (ppmv and lb/hr limits from the electrostatic precipitator), and NO_x (lb NO_x/tons of glass pulled calculated according to Rule 4354, 8.1) emissions at the common stack at least once every calendar year. To qualify as an annual performance test, the test date shall be at least 6 months after, and not more than 18 months after the initial and the previous annual performance test. [District NSR Rule, Rule 1070, and Rule 4354, 6.4] Federally Enforceable Through Title V Permit
29. Performance testing shall be conducted using following test methods: EPA Method 201A in conjunction with EPA Method 202, or EPA Methods 201 in conjunction with EPA Method, or CARB Method 501 in conjunction with CARB Method 5 for PM₁₀; EPA Method 25A (expressed in terms of carbon) in conjunction with EPA Method 18 for VOCs; EPA Method 10 or CARB Method 100 for CO; EPA Method 6C or CARB Method 100 for SO_x; EPA Method 7E or CARB Method 100 for NO_x; EPA Method 3, 3A, or CARB Method 100 for stack gas oxygen; and EPA Method 2 for stack gas velocity or volumetric flow rate. [District NSR Rule, Rule 4354, 6.5.1, and Rule 2520, 9.3.2] Federally Enforceable Through Title V Permit
30. In lieu of performing a source test for PM₁₀, the results of CARB Method 5 or EPA Methods 5 and 8 may be used for measuring PM₁₀ emissions limit. If this option is used, then all of the particulate emissions will be considered to be PM₁₀. [District NSR Rule] Federally Enforceable Through Title V Permit
31. 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 exceedance of 100 hours. [District Rule 1081] Federally Enforceable Through Title V Permit
32. Source testing shall be conducted by a CARB-certified source testing contractor. Source testing shall be conducted using the methods and procedures approved by the District. The District must be notified 30 days prior to any source test, and a source test plan must be submitted for approval at least 15 days prior to source testing. The results of each source test shall be submitted to the District within 60 days after the source test date. [District Rule 1081] Federally Enforceable Through Title V Permit
33. All required source testing shall conform to the compliance testing procedures described in District Rule 1081. [District Rule 1081] Federally Enforceable Through Title V Permit
34. Source test results shall be representative of operations equal to or greater than 60 percent of the permitted production capacity or fuel use capacity for each furnace as stated in the Permit to Operate. [District Rule 4354, 6.5.2] Federally Enforceable Through Title V Permit
35. Any visible emission monitoring exceedance showing air contaminant discharged into the atmosphere for a period or periods aggregating more than three minutes in any one hour which is as dark as, or darker than, Ringelmann 1 or 20% opacity shall be reported by the operator to the APCO within 96 hours. [District Rule 1080]
36. 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. This system shall be made available to the District once the re-bricking of furnaces 22-A and 22-B is complete. [District Rule 1080]

PERMIT UNIT REQUIREMENTS CONTINUE ON NEXT PAGE

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

37. 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]
38. The electrostatic precipitator stack shall be equipped with an operational Continuous Emission Monitor (CEM) for NOx (as NO₂) and SOx (as SO₂) for monitoring of furnaces N-593-10 (22-C), N-593-12 (22-A), & N-593-13 (22-B) and shall be measured on an hourly basis. The monitoring device shall have a continuous recording device, and all records shall be kept on site. [District NSR Rule, Rule 1080 and Rule 4354, 5.8] Federally Enforceable Through Title V Permit
39. The electrostatic precipitator stack shall be equipped with an operational continuous opacity monitoring and recording system. [District Rules 1080 and 4101] Federally Enforceable Through Title V Permit
40. The CEMS shall comply with the requirements of 40 Code of Federal Regulations (CFR) Part 51, 40 CFR Parts 60.7 and 60.13, 40 CFR Part 60 Appendix B (Performance Specifications) and Appendix F (Quality Assurance Procedures), and applicable sections of Rule 1080 (Stack Monitoring). [District Rules 1080 and 4354, 5.8 and 6.6.1] Federally Enforceable Through Title V Permit
41. An exceedance of NOx emission limit as indicated by the CEMS shall be reported by the operator to the APCO within 24 hours. The notification shall include 1) name and location of the facility, 2) identification of furnace(s) causing the exceedances, 3) calculation of actual NOx, CO and VOC emissions, and 4) corrective actions and schedules to complete the work. [District Rule 4354, 9.6.1 and District Rule 1080] Federally Enforceable Through Title V Permit
42. The operator shall notify the APCO no later than eight hours after the detection of a breakdown of the CEMS. The operator shall inform the APCO of the intent to shut down the CEMS at least 24 hours prior to the event. [District Rule 1080]
43. 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]
44. Cylinder gas audits (CGAs) of continuous emission monitors shall be conducted quarterly, except during quarters in which relative 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]
45. 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 \pm 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]
46. The permittee shall maintain daily records of total hours of operation, type and quantity of fuel used, quantity of glass pulled, NOx emission rate (in lb/ton of glass pulled), and aggregated NOx emissions. The permittee shall also maintain records of source tests and all operating parameters established during the initial source test, all instances of maintenance and repair, any malfunction, as well as all periods of idling, startup, and shutdown. All records shall be maintained on the premises for a period of at least five years and shall be made available during normal business hours Monday through Friday for District inspection upon request. [District Rule 2201 and District Rule 4354, 6.3.2] Federally Enforceable Through Title V Permit
47. 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]

PERMIT UNIT REQUIREMENTS CONTINUE ON NEXT PAGE

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

48. Compliance with the conditions in the permit requirements for this unit shall be deemed compliance with District Rules 4201 and 4202. A permit shield is granted from these requirements. [District Rule 2520, 13.2] Federally Enforceable Through Title V Permit
49. The requirements of District Rule 4301 were determined to not apply to this unit. A permit shield is granted from these requirements. [District Rule 2520, 13.2] Federally Enforceable Through Title V Permit
50. 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
51. 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
52. 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
53. The requirements of 40 CFR 61, Subpart N were determined to not apply to this unit. A permit shield is granted from these requirements. [District Rule 2520, 13.2] Federally Enforceable Through Title V Permit
54. A log of daily process weight, wt% cullet per batch, electric boosting, fuel usage and other relevant operating parameters shall be kept on the premises and shall be made available for District inspection upon request. [District Rule 2520, 9.3.2 and District NSR Rule] Federally Enforceable Through Title V Permit
55. The permittee shall maintain accurate records of the electrostatic precipitator voltage and current readings on a daily basis and should compare the readings with the acceptable range of current and voltage levels established during the most recent annual PM10 source test. Records of the daily readings, the acceptable range established from readings during source testing, and the calculations used to establish the acceptable range shall be kept on the premises for a minimum of five years and shall be made available for District inspection upon request. [District NSR Rule and Rule 2520, 9.4.2] Federally Enforceable Through Title V Permit

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

San Joaquin Valley Air Pollution Control District

PERMIT UNIT: N-593-13-8

EXPIRATION DATE: 07/31/2012

EQUIPMENT DESCRIPTION:

67 MMBTU/HR GLASS MELTING OXYGEN-ENRICHED AIR-STAGING (OEAS) FURNACE #22-B WITH CONTINUOUS EMISSIONS MONITORING SYSTEM (CEMS) SHARED WITH FURNACES A AND C AT A COMMON STACK, SERVED BY AN ELECTROSTATIC PRECIPITATOR (ESP)

PERMIT UNIT REQUIREMENTS

1. 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
2. During periods when furnace is in idle state the glass throughput shall not exceed 50 tons per day. [District NSR Rule] Federally Enforceable Through Title V Permit
3. The exhaust from the glass melting furnace shall be vented through an operational electrostatic precipitator served by particulate recycling system with baghouse on permit N-593-10, except during periods of furnace startup, furnace idle, and electrostatic precipitator maintenance. Scheduled electrostatic precipitator maintenance shall be accomplished during periods of furnace idling whenever possible. [District NSR Rule] Federally Enforceable Through Title V Permit
4. During periods of electrostatic precipitator maintenance and furnace startup, the furnace visible emissions shall be recorded by CARB certified personnel during daylight hours using EPA Method 9 within 2 hours of electrostatic precipitator shutdown or bypass and at least three times a day. Each visible emissions evaluation shall be at least 4 hours apart. [District NSR Rule] Federally Enforceable Through Title V Permit
5. The applicant shall maintain accurate records of the time, date, cause (e.g. electrostatic precipitator maintenance, furnace startup, or furnace idle), and duration electrostatic precipitator is not in operation and result of any visible emissions testing during the period. Records shall be made available for District inspection upon request. [District Rule 1070] Federally Enforceable Through Title V Permit
6. 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
7. The furnace shall be fired on PUC regulated natural gas or LPG/propane fuel only. [District NSR Rule] 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. The total startup time, as defined in §3.22 of District Rule 4354 (Glass Melting Furnaces), shall not exceed 40 days. [District Rule 4354, 5.2.1] Federally Enforceable Through Title V Permit
10. During the startup period, the permittee shall comply with the requirements of Section 5.2 of District Rule 4354. [District Rule 4354, 5.2] Federally Enforceable Through Title V Permit

PERMIT UNIT REQUIREMENTS CONTINUE ON NEXT PAGE

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11. The emission control system shall be in operation as soon as technologically feasible during the startup period to minimize emissions. [District Rule 4354, 5.2.3] Federally Enforceable Through Title V Permit
12. The duration of shutdown, as measured from the time the furnace operations drop below the idle threshold specified in Section 3.9 of District Rule 4354 to when all emissions from the furnace cease, shall not exceed 20 days. [District Rule 4354, 5.3.1] Federally Enforceable Through Title V Permit
13. The emission control system shall be in operation whenever technologically feasible during shutdown to minimize emissions. [District Rule 4354, 5.3.2] Federally Enforceable Through Title V Permit
14. The emission control system shall be in operation whenever technologically feasible during furnace idling to minimize emissions. [District Rule 4354, 5.4.1] Federally Enforceable Through Title V Permit
15. Process weight (based on input to the furnace) shall not exceed 340 tons/day. [District NSR Rule] Federally Enforceable Through Title V Permit
16. The weight percent of cullet per batch shall not be less than 13.6%. Batch weight distribution data shall be available for District inspection during normal operating hours. [District NSR Rule] Federally Enforceable Through Title V Permit
17. Particulate matter emissions shall not exceed 0.1 grains/dscf in concentration. [District Rule 4201] Federally Enforceable Through Title V Permit
18. Particulate matter emissions shall not exceed the hourly rate as calculated in District Rule 4202 using the equation $E=3.59P^{0.62}$ ($P < 30$ tph) or $E=17.31P^{0.16}$ ($P > 30$ tph). [District Rule 4202] Federally Enforceable Through Title V Permit
19. Sulfur compound emissions shall not exceed 0.2% by volume, 2000 ppmv, on a dry basis averaged over 15 consecutive minutes. [San Joaquin County Rule 407 and District Rule 4801] Federally Enforceable Through Title V Permit
20. Except during furnace idling, shutdown, and startup, the aggregated NOx emissions shall not exceed 3.6 lb-NOx/ton of glass pulled (based on a block 24-hour average). Aggregated NOx emissions are the NOx emissions as measured at the common stack divided by the sum of the daily glass pulled from permit units N-593-10 (22-C), N-593-12 (22-A), and N-593-13 (22-B). [District Rule 4354, 9.0, 9.4, and 9.7.1] Federally Enforceable Through Title V Permit
21. Daily combined emissions from furnaces N-593-10 (22-C), N-593-12 (22-A), and N-593-13 (22-B) shall not exceed any of the following limits: 3,392.2 lbs-NOx/day, 1,867.0 lbs-SOx/day, 300.0 lbs-PM10/day, and 105.0 lbs-filterable PM10/day. [District NSR Rule] Federally Enforceable Through Title V Permit
22. Combined emissions from furnaces N-593-10 (22-C), N-593-12 (22-A), and N-593-13 (22-B) computed over a 12 consecutive month period shall not exceed any of the following limits: 606.540 tons-NOx/year, 295 tons-SOx/year, and 55 tons-PM10/year. [District NSR Rule] Federally Enforceable Through Title V Permit
23. Emissions from this furnace shall not exceed any of the following limits: 77.9 lbs-NOx/hr, 5.38 lbs-PM10/hr (controlled) nor 0.9 lb-PM10/ton (uncontrolled), 48.2 lbs-SOx/hr, 1.0 lb-CO/ton of glass pulled, or 0.25 lb-VOC/ton of glass pulled nor 20 ppmv @ 8% O2, all based on three hour averages. [District NSR Rule] Federally Enforceable Through Title V Permit
24. Combined CO emissions from furnaces N-593-10 (22-C), N-593-12 (22-A), and N-593-13 (22-B) shall not exceed 300 ppmv @ 8% O2 nor 1.0 lb-CO/ton of glass pulled, based on a three hour average. [District NSR Rule and Rule 4354] Federally Enforceable Through Title V Permit
25. Combined VOC emissions from furnaces N-593-10 (22-C), N-593-12 (22-A), and N-593-13 (22-B) shall not exceed 20 ppmv @ 8% O2 nor 0.25 lb-VOC/ton of glass pulled, based on a three hour average. [District NSR Rule and Rule 4354] Federally Enforceable Through Title V Permit

PERMIT UNIT REQUIREMENTS CONTINUE ON NEXT PAGE

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26. Daily combined emission rates for NO_x and SO_x shall be measured by the CEMS and daily emission limits for PM₁₀, VOC and CO shall be measured by multiplying the hourly source test emission rates by the number of hours per day. Hourly emission rates while source testing shall be determined using the arithmetic mean of the test runs as outlined in District Rule 1081-"Source Sampling" section 6.0. [District NSR Rule and Rule 1081] Federally Enforceable Through Title V Permit
27. NO_x, CO, and VOC emission limitations of District Rule 4354 shall not apply during periods of start-up, shutdown, and idling, as defined by Rule 4354, 3.0. Permittee shall notify the District at least 24 hours before initiating idling, shutdown and startup and this notification shall include: 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, 4.2, 6.7] Federally Enforceable Through Title V Permit
28. Annual performance testing shall be conducted for VOC (ppmv), CO (lb/ton), PM₁₀, SO_x (ppmv and lb/hr limits from the electrostatic precipitator), and NO_x (lb NO_x/tons of glass pulled calculated according to Rule 4354, 8.1) emissions at the common stack at least once every calendar year. To qualify as an annual performance test, the test date shall be at least 6 months after, and not more than 18 months after the initial and the previous annual performance test. [District NSR Rule, Rule 1070, and Rule 4354, 6.4] Federally Enforceable Through Title V Permit
29. Performance testing shall be conducted using following test methods: EPA Method 201A in conjunction with EPA Method 202, or EPA Methods 201 in conjunction with EPA Method, or CARB Method 501 in conjunction with CARB Method 5 for PM₁₀; EPA Method 25A (expressed in terms of carbon) in conjunction with EPA Method 18 for VOCs; EPA Method 10 or CARB Method 100 for CO; EPA Method 6C or CARB Method 100 for SO_x; EPA Method 7E or CARB Method 100 for NO_x; EPA Method 3, 3A, or CARB Method 100 for stack gas oxygen; and EPA Method 2 for stack gas velocity or volumetric flow rate. [District NSR Rule, Rule 4354, 6.5.1, and Rule 2520, 9.3.2] Federally Enforceable Through Title V Permit
30. In lieu of performing a source test for PM₁₀, the results of CARB Method 5 or EPA Methods 5 and 8 may be used for measuring PM₁₀ emissions limit. If this option is used, then all of the particulate emissions will be considered to be PM₁₀. [District NSR Rule] Federally Enforceable Through Title V Permit
31. 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 exceedance of 100 hours. [District Rule 1081] Federally Enforceable Through Title V Permit
32. Source testing shall be conducted by a CARB-certified source testing contractor. Source testing shall be conducted using the methods and procedures approved by the District. The District must be notified 30 days prior to any source test, and a source test plan must be submitted for approval at least 15 days prior to source testing. The results of each source test shall be submitted to the District within 60 days after the source test date. [District Rule 1081] Federally Enforceable Through Title V Permit
33. All required source testing shall conform to the compliance testing procedures described in District Rule 1081. [District Rule 1081] Federally Enforceable Through Title V Permit
34. Source test results shall be representative of operations equal to or greater than 60 percent of the permitted production capacity or fuel use capacity for each furnace as stated in the Permit to Operate. [District Rule 4354, 6.5.2] Federally Enforceable Through Title V Permit
35. Any visible emission monitoring exceedance showing air contaminant discharged into the atmosphere for a period or periods aggregating more than three minutes in any one hour which is as dark as, or darker than, Ringelmann 1 or 20% opacity shall be reported by the operator to the APCO within 96 hours. [District Rule 1080] Federally Enforceable Through Title V Permit
36. 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. This system shall be made available to the District once the re-bricking of furnaces 22-A and 22-B is complete. [District Rule 1080]

PERMIT UNIT REQUIREMENTS CONTINUE ON NEXT PAGE

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37. 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]
38. The electrostatic precipitator stack shall be equipped with an operational Continuous Emission Monitor (CEM) for NO_x (as NO₂) and SO_x (as SO₂) for monitoring of furnaces N-593-10 (22-C), N-593-12 (22-A), & N-593-13 (22-B) and shall be measured on an hourly basis. The monitoring device shall have a continuous recording device, and all records shall be kept on site. [District NSR Rule, Rule 1080, and Rule 4354, 5.8] Federally Enforceable Through Title V Permit
39. The electrostatic precipitator stack shall be equipped with an operational continuous opacity monitoring and recording system. [District Rules 1080 and 4101] Federally Enforceable Through Title V Permit
40. The CEMS shall comply with the requirements of 40 Code of Federal Regulations (CFR) Part 51, 40 CFR Parts 60.7 and 60.13, 40 CFR Part 60 Appendix B (Performance Specifications) and Appendix F (Quality Assurance Procedures), and applicable sections of Rule 1080 (Stack Monitoring). [District Rules 1080 and 4354, 5.8 and 6.6.1] Federally Enforceable Through Title V Permit
41. An exceedance of NO_x emission limit as indicated by the CEMS shall be reported by the operator to the APCO within 24 hours. The notification shall include 1) name and location of the facility, 2) identification of furnace(s) causing the exceedances, 3) calculation of actual NO_x, CO and VOC emissions, and 4) corrective actions and schedules to complete the work. [District Rule 4354, 9.6.1 and District Rule 1080] Federally Enforceable Through Title V Permit
42. The operator shall notify the APCO no later than eight hours after the detection of a breakdown of the CEMS. The operator shall inform the APCO of the intent to shut down the CEMS at least 24 hours prior to the event. [District Rule 1080]
43. 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]
44. Cylinder gas audits (CGAs) of continuous emission monitors shall be conducted quarterly, except during quarters in which relative 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
45. 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]
46. The permittee shall maintain daily records of total hours of operation, type and quantity of fuel used, quantity of glass pulled, NO_x emission rate (in lb/ton of glass pulled), and aggregated NO_x emissions. The permittee shall also maintain records of source tests and all operating parameters established during the initial source test, all instances of maintenance and repair, any malfunction, as well as all periods of idling, startup, and shutdown. All records shall be maintained on the premises for a period of at least five years and shall be made available during normal business hours Monday through Friday for District inspection upon request. [District Rule 2201 and District Rule 4354, 6.3.2] Federally Enforceable Through Title V Permit
47. 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]

PERMIT UNIT REQUIREMENTS CONTINUE ON NEXT PAGE

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

48. Compliance with the conditions in the permit requirements for this unit shall be deemed compliance with District Rules 4201 and 4202. A permit shield is granted from these requirements. [District Rule 2520, 13.2] Federally Enforceable Through Title V Permit
49. The requirements of District Rule 4301 were determined to not apply to this unit. A permit shield is granted from these requirements. [District Rule 2520, 13.2] Federally Enforceable Through Title V Permit
50. 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
51. 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
52. 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
53. The requirements of 40 CFR 61, Subpart N were determined to not apply to this unit. A permit shield is granted from these requirements. [District Rule 2520, 13.2] Federally Enforceable Through Title V Permit
54. A log of daily process weight, wt% cullet per batch, electric boosting, fuel usage and other relevant operating parameters shall be kept on the premises and shall be made available for District inspection upon request. [District Rule 2520, 9.3.2 and District NSR Rule] Federally Enforceable Through Title V Permit
55. The permittee shall maintain accurate records of the electrostatic precipitator voltage and current readings on a daily basis and should compare the readings with the acceptable range of current and voltage levels established during the most recent annual PM10 source test. Records of the daily readings, the acceptable range established from readings during source testing, and the calculations used to establish the acceptable range shall be kept on the premises for a minimum of five years and shall be made available for District inspection upon request. [District NSR Rule and Rule 2520, 9.3.2] Federally Enforceable Through Title V Permit

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APPENDIX III

Historical Actual Emissions Data for SO_x

Glass Melting Furnace 22-A	
Allowed Process Weight Rate	87,235 Tons per 12-Months
Rule 4534 Allowed SO2 Limit	0.9 lbs/ton
Projected Allowable SO2 Emissions	39.3 Tons per 12-Months
Past 24 Months Actual SO2 Emissions	
12/1/08 to 11/30/09	55.70 Tons per 12-Months
12/1/07 to 11/30/08	54.08 Tons per 12-Months
Average	54.89 Tons per 12-Months
Net SO2 Emissions Decrease	-15.63 Tons per 12-Months

Glass Melting Furnace 22-B	
Allowed Process Weight Rate	340 Tons per Day
12-Month Extended Process Weight Rate (365 Days)	124,100 Tons per 12-Months
Rule 4534 Allowed SO2 Limit	0.9 lbs/ton
Projected Allowable SO2 Emissions	55.85 Tons per 12-Months
Past 24 Months Actual SO2 Emissions	
12/1/08 to 11/30/09	61.44 Tons per 12-Months
12/1/07 to 11/30/08	63.19 Tons per 12-Months
Average	62.31 Tons per 12-Months
Net SO2 Emissions Decrease	-6.47 Tons per 12-Months

Glass Melting Furnace 22-C	
Allowed Process Weight Rate	146,000 Tons per 12-Months
Rule 4534 Allowed SO2 Limit	0.9 lbs/ton
Projected Allowable SO2 Emissions	65.7 Tons per 12-Months
Past 24 Months Actual SO2 Emissions	
12/1/08 to 11/30/09	157.12 Tons per 12-Months
12/1/07 to 11/30/08	152.83 Tons per 12-Months
Average	154.97 Tons per 12-Months
Net SO2 Emissions Decrease	-89.27 Tons per 12-Months

Daily Reported Glass Production & Estimated SO2 Emissions
"A" Furnace
Basic Batch Material "S" Input by color formulation

DATE	Daily SO2 Lbs	Daily Glass Tons	COMMENTS	DATE	Daily SO2 Lbs	Daily Glass Tons	COMMENTS	DATE	Daily SO2 Lbs	Daily Glass Tons	COMMENTS
2009				2009				2007			
01/01	288.18	138.03		01/01	244.48	203.72		01/01	368.88	188.04	
01/02	318.06	182.08		01/02	244.48	203.72		01/02	414.81	212.67	
01/03	318.06	182.08		01/03	244.48	203.72		01/03	382.83	198.22	
01/04	378.87	194.18		01/04	244.48	203.72		01/04	388.86	204.39	
01/05	231.03	184.18	Color change to DLG (1.2 lbsSO2/Ton)	01/05	244.48	203.72		01/05	382.83	198.22	
01/06	221.03	184.18		01/06	244.48	203.72		01/06	382.83	198.22	
01/07	228.35	190.79		01/07	244.48	203.72		01/07	382.83	198.22	
01/08	237.04	197.55		01/08	244.48	203.72		01/08	382.83	198.22	
01/09	237.04	197.55		01/09	244.48	203.72		01/09	414.81	212.67	
01/10	237.04	197.55		01/10	252.89	210.74		01/10	414.81	212.67	
01/11	237.04	197.55		01/11	252.89	210.74		01/11	388.86	188.04	
01/12	237.04	197.55		01/12	252.89	210.74		01/12	382.83	198.22	
01/13	244.98	204.13		01/13	252.89	210.74		01/13	414.81	212.67	
01/14	262.88	210.72		01/14	252.89	210.74		01/14	414.81	212.67	
01/15	382.88	210.72		01/15	261.76	218.13		01/15	414.81	212.67	
01/16	237.04	197.55		01/16	261.76	218.13		01/16	414.81	212.67	
01/17	237.04	197.55		01/17	244.48	203.71		01/17	389.87	204.98	
01/18	237.04	197.55		01/18	252.89	210.74		01/18	399.18	204.71	
01/19	118.82	86.77		01/19	252.89	210.74		01/19	399.18	204.71	
01/20	128.43	108.28		01/20	252.89	210.74		01/20	399.18	204.71	
01/21	228.15	190.98		01/21	252.89	210.74		01/21	389.91	203.03	
01/22	228.15	190.98		01/22	252.89	210.74		01/22	389.91	203.03	
01/23	244.98	204.13		01/23	244.48	203.71		01/23	379.39	194.68	
01/24	244.98	204.13		01/24	244.48	203.71		01/24	390.12	200.08	
01/25	244.98	204.13		01/25	244.48	203.71		01/25	380.92	200.47	
01/26	244.98	204.13		01/26	244.48	203.71		01/26	375.94	192.79	
01/27	244.98	204.13		01/27	238.03	188.88		01/27	376.94	192.79	
01/28	244.98	204.13		01/28	244.48	203.71		01/28	390.48	200.28	
01/29	244.98	204.13		01/29	244.48	203.71		01/29	390.48	200.28	
01/30	237.04	197.55		01/30	227.80	183.87		01/30	375.48	192.53	
01/31	244.98	204.13		01/31	218.17	182.84		01/31	375.48	192.53	
02/01	242.28	201.80		02/01	219.17	182.84		02/01	375.43	192.53	
02/02	398.68	202.90	Color change to Antique (1.95 lbsSO2/Ton)	02/02	219.17	182.84		02/02	375.43	192.53	
02/03	378.87	192.88		02/03	219.17	182.84		02/03	380.97	198.37	
02/04	378.88	182.64		02/04	219.17	182.84		02/04	380.97	198.37	
02/05	360.81	164.93		02/05	219.17	182.84		02/05	380.97	198.37	
02/06	378.88	182.64		02/06	223.93	185.81		02/06	380.97	198.37	
02/07	378.88	182.64		02/08	388.88	188.04	Color change to Antique (1.95 lbsSO2/Ton)	02/08	380.97	198.37	
02/08	378.88	182.64		02/07	380.81	185.03		02/07	380.97	198.37	
02/09	378.88	182.64		02/08	380.81	185.03		02/08	397.85	203.87	
02/10	378.88	182.64		02/09	380.81	185.03		02/09	397.85	203.87	
02/11	378.88	182.64		02/10	380.81	185.03		02/10	397.85	203.87	
02/12	378.88	182.64		02/11	380.81	185.03		02/11	397.85	203.87	
02/13	378.88	182.64		02/12	380.81	185.03		02/12	397.85	203.87	
02/14	378.88	182.64		02/13	380.81	185.03		02/13	397.85	203.87	
02/15	360.83	184.84		02/14	378.84	182.74		02/14	380.97	198.37	
02/16	378.88	182.64		02/15	380.81	185.03		02/15	380.97	198.37	
02/17	378.88	182.64		02/16	378.84	182.74		02/16	380.97	198.37	
02/18	360.88	184.88		02/17	380.81	185.03		02/17	380.97	198.37	
02/19	378.87	182.55		02/18	378.84	182.74		02/18	380.97	198.37	
02/20	378.87	182.55		02/19	378.84	182.74		02/19	380.97	198.37	
02/21	378.87	182.55		02/20	360.91	186.08		02/20	380.97	198.37	
02/22	378.87	182.55		02/21	378.84	182.74		02/21	364.46	188.80	
02/23	378.87	182.55		02/22	378.84	182.74		02/22	381.03	198.40	
02/24	390.70	200.38		02/23	378.88	182.78		02/23	364.46	188.80	
02/25	390.70	200.38		02/24	380.92	200.47		02/24	381.03	198.40	
02/26	408.74	208.07		02/25	378.88	182.78		02/25	381.03	198.40	
02/27	380.70	200.38		02/26	380.92	200.47		02/26	381.03	198.40	
				02/27	378.88	182.78		02/27	381.03	198.40	

Daily Reported Glass Production & Estimated SO2 Emissions
"A" Furnace
Batch Material "S" Input by color formulation

DATE	Daily SO2 Lbs	Daily Glass Tons	COMMENTS	DATE	Daily SO2 Lbs	Daily Glass Tons	COMMENTS	DATE	Daily SO2 Lbs	Daily Glass Tons	COMMENTS
02/28	390.27	200.14		02/28	390.92	200.47		02/28	381.03	195.40	
03/01	405.20	207.84		02/29	390.92	200.47		03/01	381.03	195.40	
03/02	390.27	200.14		03/01	375.89	192.76		03/02	381.03	195.40	
03/03	390.27	200.14		03/02	390.92	200.47		03/03	381.03	195.40	
03/04	390.27	200.14		03/03	390.92	200.47		03/04	387.59	203.89	
03/05	390.27	200.14		03/04	390.92	200.47		03/05	381.03	195.40	
03/06	191.23	98.09		03/05	325.52	115.85		03/06	281.03	185.40	
03/07	177.55	91.06		03/06	375.89	192.76		03/07	381.03	195.40	
03/08	177.55	91.06		03/07	375.89	192.76		03/08	387.59	203.89	
03/09	191.06	97.98		03/08	345.81	177.34		03/09	397.59	203.89	
03/10	191.99	93.31		03/09	375.89	192.76		03/10	397.59	203.89	
03/11	197.93	98.23		03/10	375.89	192.76		03/11	381.03	195.40	
03/12	250.17	129.29		03/11	375.89	192.76		03/12	397.59	203.89	
03/13	375.26	192.44		03/12	375.89	192.76		03/13	387.59	203.89	
03/14	375.26	192.44		03/13	375.89	192.76		03/14	397.59	203.89	
03/15	375.26	192.44		03/14	375.89	192.76		03/15	397.59	203.89	
03/16	375.26	192.44		03/15	375.89	192.76		03/16	397.59	203.89	
03/17	375.26	192.44		03/16	390.92	200.47		03/17	397.59	203.89	
03/18	362.76	186.03		03/17	375.89	192.76		03/18	397.59	203.89	
03/19	375.26	192.44		03/18	375.89	192.76		03/19	375.03	193.86	
03/20	375.26	192.44		03/19	375.89	192.76		03/20	391.78	200.82	
03/21	375.26	192.44		03/20	382.96	199.39		03/21	376.74	193.20	
03/22	375.26	192.44		03/21	382.96	199.39		03/22	391.77	200.91	
03/23	375.26	192.44		03/22	386.29	199.38		03/23	391.77	200.91	
03/24	375.26	192.44		03/23	390.29	199.38		03/24	391.77	200.91	
03/25	375.26	192.44		03/24	390.29	199.38		03/25	391.77	200.91	
03/26	375.26	192.44		03/25	382.96	199.39		03/26	391.77	200.91	
03/27	375.26	192.44		03/26	382.96	199.39		03/27	391.77	200.91	
03/28	375.26	192.44		03/27	382.96	199.39		03/28	376.72	193.19	
03/29	375.26	192.44		03/28	382.96	199.39		03/29	376.72	193.19	
03/30	375.26	192.44		03/29	396.89	203.41		03/30	376.72	193.19	
03/31	375.26	192.44		03/30	392.96	199.39		03/31	376.72	193.19	
04/01	375.26	192.44		03/31	382.96	199.39		04/01	376.72	193.19	
04/02	375.26	192.44		04/01	382.96	199.39		04/02	381.89	195.40	
04/03	375.26	192.44		04/02	383.02	199.42		04/03	376.72	193.19	
04/04	375.26	192.44		04/03	389.38	197.41		04/04	376.72	193.19	
04/05	375.26	192.44		04/04	383.02	199.42		04/05	376.72	193.19	
04/06	375.26	192.44		04/05	396.71	203.44		04/06	376.72	193.19	
04/07	375.26	192.44		04/06	383.02	199.42		04/07	376.72	193.19	
04/08	375.26	192.44		04/07	383.02	199.42		04/08	376.72	193.19	
04/09	375.26	192.44		04/08	383.02	199.42		04/09	376.72	193.19	
04/10	387.76	198.89		04/09	383.02	199.42		04/10	376.72	193.19	
04/11	375.26	192.44		04/10	388.00	199.23		04/11	376.72	193.19	
04/12	375.29	192.44		04/11	372.87	196.24		04/12	376.72	193.19	
04/13	375.26	192.44		04/12	382.87	196.24		04/13	376.72	193.19	
04/14	375.26	192.44		04/13	388.00	199.23		04/14	361.89	195.40	
04/15	375.29	192.51		04/14	332.34	119.18		04/15	376.72	193.19	
04/16	375.29	192.51		04/15	191.23	91.12		04/16	376.72	193.19	
04/17	375.26	192.51		04/16	295.00	105.13		04/17	361.89	195.40	
04/18	375.29	192.51		04/17	216.67	112.14		04/18	376.72	193.19	
04/19	375.26	192.51		04/18	208.00	91.13		04/19	376.72	193.19	
04/20	375.26	192.51		04/19	219.87	112.14		04/20	376.72	193.19	
04/21	375.90	192.77		04/20	216.67	112.14		04/21	376.72	193.19	
04/22	375.90	192.77		04/21	204.81	108.03		04/22	376.72	193.19	
04/23	363.36	186.34		04/22	216.66	112.03		04/23	361.89	195.40	
04/24	375.90	192.77		04/23	204.84	104.89		04/24	376.72	193.19	
04/25	375.90	192.77		04/24	327.27	167.83		04/25	376.72	193.19	
04/26	375.90	192.77		04/25	361.81	186.80		04/26	361.89	195.40	
04/27	388.42	199.19		04/26	361.81	186.80		04/27	376.72	193.19	

Daily Reported Glass Production & Estimated SO2 Emissions
"A" Furnace
Basis Batch Material "S" Input by color formulation

DATE	Daily SO2 Lbs	Daily Glass Tons	COMMENTS	DATE	Daily SO2 Lbs	Daily Glass Tons	COMMENTS	DATE	Daily SO2 Lbs	Daily Glass Tons	COMMENTS
04/28	376.80	192.77		04/27	381.81	195.90		04/28	378.72	193.19	
04/29	378.80	192.77		04/28	385.46	202.80		04/29	378.72	193.19	
04/30	389.42	199.19		04/29	391.81	198.60		04/30	378.72	193.19	
05/01	376.90	193.77		04/30	398.46	202.80		05/01	378.72	193.19	
05/02	378.80	192.77		05/01	398.46	202.80		05/02	378.72	193.19	
05/03	383.36	199.34		05/03	388.18	198.31		05/03	378.72	193.19	
05/04	382.86	196.23		05/03	388.18	198.31		05/04	378.72	193.19	
05/05	388.84	199.20		05/04	388.18	198.31		05/05	378.72	193.19	
05/06	382.82	196.20		05/05	388.18	198.31		05/06	378.72	193.19	
05/07	382.82	196.20		05/06	367.83	198.83		05/07	378.72	193.19	
05/08	355.27	192.19		05/07	230.54	192.12	Color change to DLG (1.2 lbsSO2/Ton)	05/08	378.72	193.19	
05/09	368.94	199.20		05/08	228.15	189.48		05/09	378.72	193.19	
05/10	368.94	199.20		05/09	228.15	189.48		05/10	378.72	193.19	
05/11	368.94	199.20		05/10	234.55	198.46		05/11	378.72	193.19	
05/12	368.94	199.20		05/11	228.16	188.46		05/12	391.99	201.02	
05/13	368.94	199.20		05/13	230.45	192.04		05/13	391.99	201.02	
05/14	368.94	199.20		05/13	230.45	192.04		05/14	391.99	201.02	
05/15	382.59	196.20		05/14	230.45	192.04		05/15	407.06	206.76	
05/16	368.94	199.20		05/16	230.45	192.04		05/16	392.22	201.14	
05/17	368.94	199.20		05/16	230.45	192.04		05/17	392.22	201.14	
05/18	368.94	199.20		05/17	239.88	199.73		05/18	331.87	170.18	
05/19	358.27	192.19		05/18	239.88	199.73		05/19	377.13	193.40	
05/20	355.27	192.19		05/19	239.88	199.73		05/20	377.13	193.40	
05/21	341.50	178.18		05/20	230.45	192.04		05/21	377.13	193.40	
05/22	355.27	192.19		05/21	239.88	199.73		05/22	377.31	193.40	
05/23	358.27	192.19		05/22	248.89	207.41		05/23	377.31	193.40	
05/24	358.27	192.19		05/23	258.11	218.09		05/24	362.21	188.78	
05/25	346.58	177.72		05/24	248.89	207.41		05/25	377.31	193.40	
05/26	280.70	217.25	Color change to DLG (1.2 lbsSO2/Ton)	05/26	258.11	218.09		05/26	377.31	193.40	
05/27	252.85	210.71		05/26	248.89	207.41		05/27	377.31	193.40	
05/28	264.83	218.19		05/27	248.89	207.41		05/28	377.31	193.40	
05/29	243.18	202.85		05/28	239.88	199.73		05/29	377.31	193.40	
05/30	243.18	202.85		05/28	230.45	192.04		05/30	392.40	201.23	
05/31	243.18	202.85		05/30	248.89	207.41		05/31	377.31	193.40	
06/01	243.18	202.85		05/31	239.88	199.73		06/01	377.31	193.40	
06/02	243.18	202.85		06/01	239.88	199.73		06/02	392.40	201.23	
06/03	243.18	202.85		06/02	239.88	199.73		06/03	392.40	201.23	
06/04	243.18	202.85		06/03	248.89	207.41		06/04	392.40	201.23	
06/05	243.18	202.85		06/04	239.88	199.73		06/05	245.76	204.79	Color change to DLG (1.2 lbsSO2/Ton)
06/06	243.18	202.85		06/06	239.88	199.73		06/06	164.73	128.84	
06/07	243.18	202.85		06/06	239.88	199.73		06/07	173.46	144.67	
06/08	243.18	202.85		06/07	248.89	207.41		06/08	237.78	198.16	
06/09	243.11	202.59		06/08	239.88	199.73		06/09	237.78	198.16	
06/10	243.11	202.59		06/09	230.48	197.05		06/10	237.78	198.16	
06/11	243.11	202.59		06/10	248.82	202.83		06/11	237.78	198.16	
06/12	243.11	202.59		06/11	368.18	187.82	Color change to Antique (1.95 lbsSO2/Ton)	06/12	237.78	198.16	
06/13	243.11	202.59		06/12	390.88	202.44		06/13	246.94	205.78	
06/14	243.11	202.59		06/13	390.88	202.44		06/14	246.94	205.78	
06/15	224.41	187.01		06/14	390.88	202.34		06/15	246.94	205.78	
06/16	224.41	187.01		06/15	390.88	202.34		06/16	246.94	205.78	
06/17	225.20	187.87		06/16	390.88	202.34		06/17	246.94	205.78	
06/18	365.98	187.87	Color change to Antique (1.95 lbsSO2/Ton)	06/17	399.88	202.34		06/18	246.94	205.78	
06/19	345.35	177.10		06/18	378.90	192.77		06/19	237.82	198.16	
06/20	348.35	177.10		06/18	378.90	192.77		06/20	237.82	198.16	
06/21	360.36	194.80		06/20	378.02	192.83		06/21	237.82	198.16	
06/22	360.36	194.80		06/21	378.02	192.83		06/22	226.87	189.08	
06/23	360.36	194.80		06/22	378.02	192.83		06/23	230.90	192.42	
06/24	360.79	195.02		06/23	381.28	202.56		06/24	230.90	192.42	
06/25	360.79	195.02		06/24	378.23	192.54		06/25	239.16	199.30	

Daily Reported Glass Production & Estimated SO2 Emissions
"A" Furnace
Basis Batch Material "S" Input by color formulation

DATE	Daily SO2 LBs	Daily Glass Tons	COMMENTS	DATE	Daily SO2 LBs	Daily Glass Tons	COMMENTS	DATE	Daily SO2 LBs	Daily Glass Tons	COMMENTS
06/26	360.79	185.02		06/25	376.23	192.94		06/28	247.40	208.17	
06/27	360.79	185.02		06/26	376.23	192.94		06/27	247.40	208.17	
06/28	348.78	177.31		06/27	387.03	188.22		06/28	247.40	208.17	
06/29	348.78	177.31		06/28	376.23	192.94		06/29	247.40	208.17	
06/30	360.79	185.02		06/29	381.29	200.66		06/30	247.40	208.17	
07/01	341.89	178.33		06/30	284.40	197.13		07/01	247.40	208.17	
07/02	368.23	189.38		07/01	387.69	188.68		07/02	247.40	208.17	
07/03	382.92	196.37		07/02	384.40	197.13		07/03	247.40	208.17	
07/04	369.23	189.38		07/03	384.40	197.13		07/04	247.40	208.17	
07/05	369.23	189.38		07/04	334.21	171.39		07/05	208.17	171.81	
07/06	369.23	189.38		07/05	387.62	188.53		07/06	222.86	188.55	
07/07	369.23	189.38		07/06	387.62	188.53		07/07	239.16	199.30	
07/08	369.23	189.38		07/07	382.98	198.40		07/08	239.16	199.30	
07/09	369.23	189.38		07/08	382.98	198.40		07/09	239.16	199.30	
07/10	369.23	189.38		07/09	382.98	198.40		07/10	239.16	199.30	
07/11	382.90	196.36		07/10	382.98	198.40		07/11	239.16	199.30	
07/12	389.23	189.35		07/11	382.51	196.18		07/12	239.16	199.30	
07/13	389.23	189.35		07/12	382.51	196.18		07/13	239.16	199.30	
07/14	382.90	196.38		07/13	382.51	196.18		07/14	239.16	199.30	
07/15	382.90	196.38		07/14	388.84	189.15		07/15	239.16	199.30	
07/16	369.23	189.35		07/15	382.51	196.18		07/16	239.16	199.30	
07/17	369.23	189.35		07/16	382.34	198.07		07/17	239.16	199.30	
07/18	369.23	189.35		07/17	382.34	198.07		07/18	239.16	199.30	
07/19	382.90	196.38		07/18	382.34	198.07		07/19	239.16	199.30	
07/20	389.23	189.35		07/19	388.69	187.97		07/20	247.60	206.25	
07/21	389.23	189.35		07/20	382.34	196.07		07/21	247.60	206.25	
07/22	389.23	189.35		07/21	382.34	198.07		07/22	247.60	206.25	
07/23	389.23	189.35		07/22	382.34	198.07		07/23	247.60	206.25	
07/24	389.23	189.35		07/23	382.34	198.07		07/24	247.60	206.25	
07/25	389.23	189.35		07/24	368.89	188.07		07/25	231.00	192.50	
07/26	382.90	196.38		07/25	382.34	198.07		07/26	239.24	199.37	
07/27	382.90	196.38		07/26	382.34	198.07		07/27	239.24	199.37	
07/28	382.90	196.38		07/27	388.89	189.07		07/28	239.24	199.37	
07/29	369.23	189.35		07/28	382.34	198.07		07/29	231.00	192.50	
07/30	369.23	189.35		07/29	382.34	198.07		07/30	231.00	192.50	
07/31	389.23	189.35		07/30	382.34	198.07		07/31	231.00	192.50	
08/01	389.23	189.35		07/31	382.34	198.07		08/01	231.00	192.50	
08/02	370.84	190.02		08/01	388.01	200.38		08/02	231.00	192.50	
08/03	383.89	188.81		08/02	398.01	203.08		08/03	223.14	185.99	
08/04	383.89	188.81		08/03	398.01	203.08		08/04	231.40	192.83	
08/05	347.38	178.13		08/04	398.01	203.08		08/05	231.40	192.83	
08/06	383.89	188.81		08/05	398.01	203.08		08/06	231.40	192.83	
08/07	383.89	188.81		08/06	382.38	198.08		08/07	231.40	192.83	
08/08	347.38	178.13		08/07	398.01	203.08		08/08	231.40	192.83	
08/09	383.89	188.81		08/08	398.01	203.08		08/09	231.40	192.83	
08/10	389.74	184.48		08/09	398.01	203.08		08/10	231.40	192.83	
08/11	355.66	182.38		08/10	398.01	203.08		08/11	231.40	192.83	
08/12	389.23	189.38		08/11	398.01	203.08		08/12	231.40	192.83	
08/13	382.92	198.37		08/12	398.01	203.08		08/13	239.66	199.72	
08/14	396.85	203.41		08/13	398.01	203.08		08/14	239.66	199.72	
08/15	398.85	203.41		08/14	398.01	203.08		08/15	239.66	199.72	
08/16	386.86	203.41		08/15	398.01	203.08		08/16	239.66	199.72	
08/17	389.29	189.38		08/16	398.01	203.08		08/17	239.66	199.72	
08/18	389.29	189.38		08/17	388.01	197.34		08/18	239.66	199.72	
08/19	389.29	189.38		08/18	238.83	197.34	Color change to DLG (1.2 lbsSO2/Ton)	08/19	239.66	199.72	
08/20	369.28	189.38		08/19	244.00	204.00		08/20	239.66	199.72	
08/21	369.28	189.38		08/20	244.00	204.00		08/21	239.66	199.72	
08/22	359.29	189.38		08/21	245.27	204.39		08/22	239.66	199.72	
08/23	359.29	189.38		08/22	237.38	197.79		08/23	239.66	199.72	

Daily Reported Glass Production & Estimated SO2 Emissions
"A" Furnace
Basic Batch Material "S" Input by color formulation

DATE	Daily SO2 Lbs	Daily Glass Tons	COMMENTS	DATE	Daily SO2 Lbs	Daily Glass Tons	COMMENTS	DATE	Daily SO2 Lbs	Daily Glass Tons	COMMENTS
08/24	369.29	189.38		08/23	246.27	204.39		08/24	247.93	206.61	
08/25	369.29	189.38		08/24	246.27	204.39		08/25	247.93	206.61	
08/26	374.19	191.89		08/25	228.44	191.20		08/26	247.93	206.61	
08/27	385.33	187.36		08/26	246.27	204.39		08/27	247.93	206.61	
08/28	365.33	187.36		08/27	246.27	204.39		08/28	247.93	206.61	
08/29	385.33	187.36		08/28	237.35	197.79		08/29	247.55	206.28	
08/30	365.33	187.36		08/29	128.59	105.49		08/30	255.60	213.17	
08/31	368.33	187.36		08/30	55.38	45.16		08/31	247.66	206.28	
09/01	383.43	198.63		08/31	55.38	45.13		09/01	247.58	206.29	
09/02	367.32	186.32		09/01	84.94	79.12		09/02	231.05	192.64	
09/03	369.25	189.36		09/02	205.70	174.42		09/03	115.52	96.27	
09/04	382.64	195.33		09/03	169.88	158.23		09/04	148.52	123.77	
09/05	363.64	198.33		09/04	229.44	181.20		09/05	231.05	192.54	
09/06	253.23	129.66		09/05	237.35	187.79		09/06	232.79	185.66	
09/07	99.93	46.12		09/06	237.35	187.79		09/07	232.79	185.66	
09/08	221.91	184.84	Color change to DLO (1.2 lbsSO2/Ton)	09/07	237.35	187.79		09/08	222.79	185.66	
09/09	228.57	188.61		09/08	237.35	187.79		09/09	222.79	185.66	
09/10	228.57	188.61		09/09	245.27	204.39		09/10	231.05	192.54	
09/11	228.57	188.61		09/10	245.27	204.39		09/11	229.13	188.64	
09/12	228.57	188.61		09/11	237.35	187.79		09/12	226.13	188.64	
09/13	228.57	188.61		09/12	221.53	184.61		09/13	235.16	195.97	
09/14	228.57	188.61		09/13	229.44	181.20		09/14	253.28	211.05	
09/15	228.57	188.61		09/14	229.44	181.20		09/15	244.21	203.61	
09/16	238.93	197.44		09/15	237.35	187.79		09/16	253.28	211.05	
09/17	247.22	206.02		09/16	237.35	187.79		09/17	244.21	203.51	
09/18	247.22	206.02		09/17	237.35	187.79		09/18	244.21	203.51	
09/19	247.22	206.02		09/18	237.35	187.79		09/19	244.21	203.51	
09/20	247.22	206.02		09/19	239.82	199.88		09/20	244.21	203.51	
09/21	247.22	206.02		09/20	239.82	199.88		09/21	244.21	203.51	
09/22	257.52	214.68		09/21	239.82	199.88		09/22	244.21	203.51	
09/23	247.22	206.02		09/22	248.17	203.61		09/23	244.21	203.61	
09/24	247.22	206.02		09/23	248.17	203.61		09/24	244.21	203.51	
09/25	247.22	206.02		09/24	239.82	199.88		09/25	243.28	202.73	
09/26	251.11	208.28		09/25	231.06	192.66		09/26	243.28	202.73	
09/27	251.11	209.28		09/26	239.82	199.88		09/27	243.28	202.73	
09/28	231.80	193.17		09/27	248.17	203.61		09/28	243.28	202.73	
09/29	241.46	201.22		09/28	239.82	199.88		09/29	252.28	210.23	
09/30	366.38	197.87	Color change to Antique (1.86 lbsSO2/Ton)	09/29	239.82	199.88		09/30	252.28	210.23	
10/01	382.60	186.66		09/30	248.17	203.61		10/01	252.28	210.23	
10/02	376.78	192.71		10/01	239.82	199.88		10/02	252.28	210.23	
10/03	376.78	192.71		10/02	239.82	199.88		10/03	252.28	210.23	
10/04	350.77	185.01		10/03	239.82	199.88		10/04	329.43	188.94	Color change to Antique (1.95 lbsSO2/Ton)
10/05	378.57	194.14		10/04	239.82	199.88		10/05	359.94	184.43	
10/06	388.14	188.79		10/05	239.82	199.88		10/06	374.61	192.11	
10/07	383.48	196.66		10/06	401.90	206.10	Color change to Antique (1.95 lbsSO2/Ton)	10/07	374.61	192.11	
10/08	373.60	191.59		10/07	407.83	207.54		10/08	389.63	199.81	
10/09	375.66	192.76		10/08	392.54	201.30		10/09	389.67	199.83	
10/10	378.89	192.76		10/09	407.83	201.30		10/10	404.64	207.61	
10/11	391.62	200.76		10/10	392.54	201.30		10/11	404.64	207.61	
10/12	380.62	186.29		10/11	392.54	201.30		10/12	389.67	199.83	
10/13	376.78	192.71		10/12	392.54	201.30		10/13	404.64	207.61	
10/14	382.10	195.96		10/13	407.83	207.54		10/14	389.67	199.83	
10/15	376.73	192.68		10/14	392.54	201.30		10/15	404.64	207.61	
10/16	376.73	192.68		10/15	392.54	201.30		10/16	389.67	199.83	
10/17	361.38	185.27		10/16	407.83	207.54		10/17	404.64	207.61	
10/18	376.73	192.68		10/17	392.54	201.30		10/18	404.64	207.61	
10/19	366.68	188.04		10/18	407.83	207.54		10/19	404.64	207.61	
10/20	376.60	192.72		10/19	392.54	201.30		10/20	404.64	207.61	
10/21	361.68	186.58		10/20	392.54	201.30		10/21	404.64	207.61	

Daily Reported Glass Production & Estimated SO2 Emissions
"A" Furnace
Basic Batch Material "S" Input by color formulation

DATE	Daily SO2 Lbs	Daily Glass Tons	COMMENTS	DATE	Daily SO2 Lbs	Daily Glass Tons	COMMENTS	DATE	Daily SO2 Lbs	Daily Glass Tons	COMMENTS
10/22	376.14	182.89		10/21	382.84	201.30		10/22	404.64	207.51	
10/23	348.27	178.60		10/22	392.84	261.30		10/23	404.64	207.51	
10/24	362.21	185.75		10/23	377.44	167.88		10/24	389.87	189.83	
10/25	376.14	192.89		10/24	377.44	181.88		10/25	374.87	192.14	
10/26	376.14	182.89		10/25	392.84	201.30		10/26	374.87	192.14	
10/27	364.94	187.15		10/26	376.27	192.86		10/27	374.87	192.14	
10/28	368.89	188.07		10/27	391.31	200.87		10/28	374.87	192.14	
10/29	382.86	196.34		10/28	376.27	182.88		10/29	374.87	192.14	
10/30	368.89	189.07		10/29	376.27	192.98		10/30	374.87	192.14	
10/31	368.89	188.07		10/30	376.27	192.88		10/31	374.87	192.14	
11/01	397.06	203.62		10/31	376.27	182.88		11/01	374.87	192.14	
11/02	368.89	189.07		11/01	406.38	308.39		11/02	388.87	199.83	
11/03	368.89	189.07		11/02	381.33	200.68		11/03	369.87	199.83	
11/04	368.89	189.07		11/03	370.81	138.83		11/04	404.64	207.51	
11/05	383.14	196.48		11/04	258.88	131.21		11/05	389.87	199.83	
11/06	383.14	196.48		11/05	188.81	92.82		11/06	388.87	199.83	
11/07	383.14	196.48		11/06	198.86	100.34		11/07	388.87	199.83	
11/08	368.89	189.20		11/07	198.86	100.34		11/08	374.87	192.14	
11/09	383.14	196.48		11/08	198.86	100.34		11/09	388.87	199.83	
11/10	389.84	189.18		11/09	188.81	92.82		11/10	388.87	199.83	
11/11	383.04	199.43		11/10	198.86	100.34		11/11	395.44	202.79	
11/12	383.04	196.43		11/11	188.88	100.34		11/12	395.44	202.79	
11/13	382.17	180.60		11/12	198.86	108.34		11/13	381.79	195.79	
11/14	378.53	192.58		11/13	188.81	92.82		11/14	395.44	202.79	
11/15	399.48	199.72		11/14	188.86	100.34		11/15	381.79	195.79	
11/16	388.48	198.72		11/15	188.88	105.34		11/16	381.79	195.79	
11/17	403.36	208.85		11/16	188.81	92.82		11/17	388.16	188.80	
11/18	403.38	208.85		11/17	188.86	100.34		11/18	388.16	188.80	
11/19	387.70	188.82		11/18	188.88	100.34		11/19	388.16	188.80	
11/20	382.47	186.14		11/19	188.88	100.34		11/20	379.18	194.45	
11/21	385.18	182.13		11/20	128.48	88.48		11/21	379.18	194.45	
11/22	340.22	174.47		11/21	188.88	100.34		11/22	388.09	187.74	
11/23	286.44	175.85	Color change to UVG (1.63 lbsSO2/Ton)	11/22	188.81	82.32		11/23	313.78	180.92	
11/24	240.88	147.78		11/23	188.81	82.81		11/24	388.09	187.74	
11/25	288.08	177.34		11/24	188.81	82.81		11/25	388.09	187.74	
11/26	72.27	44.34		11/25	80.20	30.27		11/26	378.18	194.45	
11/27	72.27	44.34		11/26	30.11	15.44		11/27	382.24	201.15	
11/28	72.27	44.34		11/27	30.11	15.44		11/28	392.24	201.15	
11/29	72.28	44.33		11/28	0.00	6.00		11/29	379.18	194.45	
11/30	218.88	133.04		11/29	0.00	7.00		11/30	382.24	201.15	
12/01	277.10	170.00		11/30	0.00	6.00		12/01	379.18	194.45	
12/02	289.16	177.39		12/01	0.00	3.00		12/02	379.18	194.45	
12/03	277.06	189.89		12/02	0.00	0.00		12/03	229.57	191.31	Color change to DLG (1.2 lbsSO2/Ton)
12/04	277.08	189.88		12/03	0.00	0.00		12/04	245.78	204.80	
12/05	277.09	189.88		12/04	0.00	0.00		12/05	237.84	198.20	
12/06	277.09	189.89		12/05	0.00	0.00		12/06	283.69	211.41	
12/07	277.12	170.01		12/06	0.00	0.00		12/07	283.69	211.41	
12/08	277.15	170.03		12/07	0.00	6.00		12/08	283.69	211.41	
12/09	277.18	170.03		12/08	0.00	8.00		12/09	283.69	211.41	
12/10	277.18	170.03		12/09	0.00	4.80		12/10	283.69	211.41	
12/11				12/10	0.00	0.00		12/11	283.69	211.41	
12/12				12/11	0.00	0.00		12/12	283.69	211.41	
12/13				12/12	0.00	0.00		12/13	283.69	211.41	
12/14				12/13	0.00	0.00		12/14	245.78	204.80	
12/15				12/14	0.00	0.00		12/15	245.78	204.80	
12/16				12/15	0.00	0.00		12/16	245.78	204.80	
12/17				12/16	0.00	0.00		12/17	245.78	204.80	
12/18				12/17	0.00	0.00		12/18	245.78	204.80	
12/19				12/18	0.00	0.00		12/19	242.62	202.18	

Daily Reported Glass Production & Estimated SO2 Emissions
 "A" Furnace
 Basis: Batch Material "S" Input by color formulation

DATE	Daily SO2 LBs	Daily Glass Tons	COMMENTS	DATE	Daily SO2 LBs	Daily Glass Tons	COMMENTS	DATE	Daily SO2 LBs	Daily Glass Tons	COMMENTS
12/20				12/19	0.00	0.00		12/20	242.62	202.16	
12/21				12/20	0.00	0.00		12/21	242.62	202.16	
12/22				12/21	0.00	0.00		12/22	244.46	203.72	
12/23				12/22	0.00	0.00		12/23	172.91	144.09	
12/24				12/23	0.00	0.00		12/24	42.14	35.12	
12/25				12/24	0.00	0.00		12/25	33.72	28.10	
12/26				12/25	0.00	0.00		12/26	33.72	28.10	
12/27				12/26	0.00	0.00		12/27	33.72	28.10	
12/28				12/27	0.00	0.00		12/28	33.72	28.10	
12/29				12/28	0.00	0.00		12/29	33.72	28.10	
12/30				12/29	0.00	0.00		12/30	163.88	161.57	
12/31				12/30	108.36	84.63		12/31	236.03	196.69	
				12/31	270.91	138.93					
Totals	113600	64315		Totals	102392	61317		Totals	116827	70747	
	58.80				61.20				58.41		

12/1/08 to	111393	62800 Tons Glass	12/1/07 to	108152	85320 Tons Glass
11/30/09	55.70 Tons SO2		11/30/08	54.08 Tons SO2	

Daily Reported Glass Production & Estimated SO2 Emissions
"B" Furnace
Basic Source Test Rate 1.28 LBs SO2/Ton Glass

DATE	Daily SO2 LBs	Daily Glass Tons	COMMENTS	DATE	Daily SO2 LBs	Daily Glass Tons	COMMENTS	DATE	Daily SO2 LBs	Daily Glass Tons	COMMENTS
2009				2008				2007			
01/01	188.71	156.02		01/01	105.81	82.43		01/01	190.36	146.72	
01/02	241.75	188.87		01/02	284.89	222.86		01/02	247.14	271.20	
01/03	326.38	262.77		01/03	348.18	272.02		01/03	291.94	206.20	
01/04	348.88	270.98		01/04	359.73	280.26		01/04	269.54	282.70	
01/05	336.38	282.77		01/05	356.73	280.26		01/05	291.94	206.20	
01/06	336.38	282.77		01/06	354.73	280.25		01/06	260.74	297.45	
01/07	325.84	254.56		01/07	358.73	280.26		01/07	260.74	297.45	
01/08	325.84	254.56		01/08	358.73	280.26		01/08	260.74	297.45	
01/09	325.84	254.56		01/09	358.73	280.26		01/09	261.94	206.20	
01/10	357.36	278.19		01/10	356.73	280.26		01/10	260.74	297.45	
01/11	357.36	278.19		01/11	358.73	280.26		01/11	269.64	288.70	
01/12	357.36	278.19		01/12	358.73	280.26		01/12	268.64	288.70	
01/13	282.77	205.29		01/13	358.73	280.26		01/13	260.74	297.45	
01/14	328.35	262.77		01/14	378.64	298.78		01/14	260.74	297.45	
01/15	378.38	295.82		01/15	390.39	304.39		01/15	261.94	206.20	
01/16	387.88	287.41		01/16	408.83	313.23		01/16	291.94	206.20	
01/17	378.38	295.82		01/17	408.83	313.23		01/17	291.94	206.20	
01/18	378.38	295.82		01/18	390.39	304.39		01/18	401.28	319.51	
01/19	387.88	287.41		01/19	400.83	313.23		01/19	410.73	320.88	
01/20	378.38	295.82		01/20	400.83	313.23		01/20	410.73	320.88	
01/21	328.35	262.77		01/21	390.39	304.39		01/21	410.73	320.88	
01/22	328.35	262.77		01/22	408.83	313.23		01/22	410.73	320.88	
01/23	328.35	262.77		01/23	408.83	313.23		01/23	410.73	320.88	
01/24	328.35	262.77		01/24	390.39	304.39		01/24	268.40	203.44	
01/26	328.35	262.77		01/25	390.39	304.39		01/25	278.00	293.78	
01/28	325.84	254.56		01/26	378.84	298.78		01/26	278.00	293.78	
01/27	328.84	254.56		01/27	378.84	298.78		01/27	278.01	296.10	
01/28	357.36	278.19		01/28	378.84	298.78		01/28	279.01	296.10	
01/29	346.85	270.98		01/29	378.84	298.78		01/29	279.01	296.10	
01/30	357.36	278.19		01/30	378.84	298.78		01/30	278.01	296.10	
01/31	357.36	278.19		01/31	378.84	298.78		01/31	279.01	296.10	
02/01	346.85	270.98		02/01	378.84	298.78		02/01	279.01	296.10	
02/02	357.36	278.19		02/02	369.22	284.88		02/02	267.56	302.78	
02/03	349.38	272.98		02/03	378.78	298.88		02/03	268.63	311.43	
02/04	354.41	276.88		02/04	378.78	298.88		02/04	299.83	311.43	
02/05	362.88	287.84		02/05	378.78	298.88		02/05	299.83	311.43	
02/06	330.76	259.41		02/06	388.90	280.39		02/06	299.83	311.43	
02/07	342.68	267.64		02/07	388.90	280.39		02/07	298.63	311.43	
02/08	342.68	267.64		02/08	388.80	280.39		02/08	298.63	311.43	
02/09	342.68	267.64		02/09	388.90	280.39		02/09	267.57	302.78	
02/10	354.39	276.87		02/10	388.90	280.39		02/10	267.57	302.78	
02/11	354.39	276.87		02/11	358.90	280.39		02/11	267.57	302.78	
02/12	354.39	276.87		02/12	389.45	288.63		02/12	267.57	302.78	
02/13	354.39	276.87		02/13	358.90	280.39		02/13	267.57	302.78	
02/14	354.39	276.87		02/14	348.34	272.14		02/14	267.57	302.78	
02/15	342.58	267.64		02/15	348.34	272.14		02/15	412.06	321.82	
02/16	358.21	286.10		02/16	348.34	272.14		02/16	412.76	323.25	
02/17	388.21	286.10		02/17	348.34	272.14		02/17	412.76	323.25	
02/18	388.21	286.10		02/18	348.34	272.14		02/18	412.76	323.25	
02/19	388.21	286.10		02/19	337.78	283.48		02/19	412.76	323.25	
02/20	376.02	286.33		02/20	274.44	214.41		02/20	412.76	323.25	
02/21	368.21	286.10		02/21	348.34	272.14		02/21	412.76	323.25	
02/22	368.21	286.10		02/22	348.34	272.14		02/22	402.70	314.51	
02/23	378.02	295.33		02/23	348.34	272.14		02/23	260.33	297.13	
02/24	364.39	278.87		02/24	348.34	272.14		02/24	260.33	297.13	
02/25	364.39	278.87		02/25	358.90	280.39		02/25	260.33	297.13	
02/26	342.58	267.64		02/26	348.34	272.14		02/26	279.17	296.23	
02/27	324.28	253.25		02/27	337.78	283.48		02/27	279.62	296.58	

Daily Reported Glass Production & Estimated SO2 Emissions
"B" Furnace
Bottle Source Test Rate 1.28 LBS SO2/Ton Glass

DATE	Daily SO2 Lbs	Daily Glass Tons	COMMENTS	DATE	Daily SO2 Lbs	Daily Glass Tons	COMMENTS	DATE	Daily SO2 Lbs	Daily Glass Tons	COMMENTS
03/28	324.29	253.35		03/28	358.90	280.39		03/28	378.62	298.58	
03/01	331.11	258.58		03/29	388.45	213.73		03/01	378.62	298.58	
03/02	319.28	249.44		03/01	388.45	288.63		03/02	323.90	252.97	
03/03	319.28	249.44		03/02	358.90	290.39		03/03	378.62	298.58	
03/04	384.75	277.15		03/03	389.45	280.51		03/04	378.62	298.58	
03/05	384.75	277.15		03/04	389.45	288.63		03/05	378.62	298.58	
03/06	342.94	267.92		03/05	211.11	146.93		03/06	380.90	305.31	
03/07	342.94	267.92		03/06	285.00	222.56		03/07	401.98	314.03	
03/08	342.94	267.92		03/07	388.45	288.63		03/08	401.98	314.03	
03/09	384.73	277.13		03/08	348.34	272.14		03/09	401.98	314.03	
03/10	331.07	258.85		03/09	388.45	288.63		03/10	401.98	314.03	
03/11	342.90	267.88		03/10	388.45	288.63		03/11	378.64	298.59	
03/12	366.85	286.37		03/11	388.45	288.63		03/12	378.61	298.57	
03/13	388.55	286.37		03/12	388.90	280.38		03/13	378.61	298.57	
03/14	384.73	277.13		03/13	358.90	280.38		03/14	378.61	298.57	
03/15	384.73	277.13		03/14	348.34	272.14		03/15	378.61	298.57	
03/16	366.85	286.37		03/15	348.34	272.14		03/16	368.44	287.84	
03/17	384.73	277.13		03/16	388.11	238.15		03/17	368.44	287.84	
03/18	384.73	277.13		03/17	358.90	280.38		03/18	368.44	287.84	
03/19	384.73	277.13		03/18	358.90	280.39		03/19	383.78	284.19	
03/20	331.07	258.85		03/19	388.45	288.63		03/20	368.02	285.95	
03/21	331.07	258.85		03/20	388.45	288.63		03/21	388.02	298.85	
03/22	331.07	258.85		03/21	390.57	305.13		03/22	368.02	298.85	
03/23	331.07	258.85		03/22	380.01	298.88		03/23	368.00	288.94	
03/24	319.28	249.42		03/23	380.01	298.88		03/24	368.00	288.94	
03/25	331.07	258.85		03/24	380.01	298.88		03/25	368.00	288.94	
03/26	378.37	295.60		03/25	380.01	293.88		03/26	368.11	278.21	
03/27	366.85	286.37		03/26	380.01	281.89		03/27	368.00	288.94	
03/28	378.37	295.60		03/27	348.38	272.17		03/28	368.11	278.21	
03/29	378.37	295.60		03/28	358.94	280.42		03/29	368.11	278.21	
03/30	388.55	286.37		03/29	358.94	280.42		03/30	368.00	288.94	
03/31	388.55	286.37		03/30	358.94	280.42		03/31	368.11	278.21	
04/01	388.55	286.37		03/31	358.94	280.42		04/01	368.00	288.94	
04/02	373.52	291.81		04/01	337.83	265.82		04/02	368.00	288.94	
04/03	368.85	288.01		04/02	337.82	263.82		04/03	328.44	258.83	
04/04	368.85	288.01		04/03	348.38	278.17		04/04	328.44	265.03	
04/05	368.85	288.01		04/04	358.94	280.42		04/05	348.21	270.48	
04/06	368.85	288.01		04/05	348.38	272.17		04/06	368.11	278.21	
04/07	380.17	297.01		04/06	358.94	280.42		04/07	368.11	278.21	
04/08	368.85	288.01		04/07	358.94	280.42		04/08	368.11	278.21	
04/09	368.85	288.01		04/08	348.38	272.17		04/09	368.11	278.21	
04/10	368.85	288.01		04/09	358.94	280.42		04/10	348.21	270.48	
04/11	380.17	297.01		04/10	368.94	280.42		04/11	348.21	270.48	
04/12	368.85	288.01		04/11	348.10	271.85		04/12	384.22	300.17	
04/13	380.17	297.01		04/12	358.94	280.18		04/13	402.84	314.80	
04/14	380.38	287.15		04/13	368.84	281.98		04/14	402.84	314.80	
04/15	334.26	281.14		04/14	348.10	211.84		04/15	402.84	314.80	
04/16	345.78	270.14		04/15	368.84	281.18		04/16	401.91	312.98	
04/17	345.78	270.14		04/16	368.84	280.18		04/17	378.58	288.55	
04/18	345.78	270.14		04/17	337.85	281.71		04/18	380.75	308.27	
04/19	345.78	270.14		04/18	348.10	271.85		04/19	378.58	288.55	
04/20	357.31	278.15		04/19	348.10	271.85		04/20	380.75	308.27	
04/21	346.11	270.40		04/20	348.10	271.85		04/21	378.58	288.55	
04/22	334.58	261.29		04/21	247.83	271.74		04/22	388.75	308.27	
04/23	323.88	252.38		04/22	358.38	278.97		04/23	378.58	288.55	
04/24	334.58	261.29		04/23	347.81	271.73		04/24	378.58	288.55	
04/25	334.58	261.29		04/24	347.81	271.73		04/25	378.58	288.55	
04/26	333.05	262.18		04/25	347.81	271.73		04/26	378.58	288.55	
04/27	334.58	261.29		04/26	347.81	271.73		04/27	378.58	288.55	

Daily Reported Glass Production & Estimated SO2 Emissions
"B" Furnace
Basic Source Test Rate 1.28 LBs SO2/Ton Glass

DATE	Daily SO2 LBs	Daily Glass Tons	COMMENTS	DATE	Daily SO2 LBs	Daily Glass Tons	COMMENTS	DATE	Daily SO2 LBs	Daily Glass Tons	COMMENTS
04/28	334.55	261.39		04/27	347.61	271.73		04/28	379.58	296.55	
04/29	357.86	279.42		04/28	358.35	279.37		04/29	379.58	296.55	
04/30	357.86	279.42		04/29	358.35	279.37		04/30	368.41	287.82	
05/01	346.11	270.40		04/30	358.35	279.37		05/01	379.58	296.55	
05/02	346.11	270.40		05/01	368.90	289.29		05/02	379.58	296.55	
05/03	346.11	270.40		05/02	368.90	289.29		05/03	368.41	287.82	
05/04	357.86	279.42		05/03	358.90	288.20		05/04	357.25	279.10	
05/05	357.86	279.42		05/04	368.90	288.20		05/05	367.25	279.10	
05/06	357.86	279.42		05/05	368.90	288.20		05/06	368.41	287.82	
05/07	357.86	279.42		05/06	379.44	299.44		05/07	367.25	279.10	
05/08	357.86	279.42		05/07	379.44	299.44		05/08	344.09	270.38	
05/09	357.86	279.42		05/08	379.44	299.44		05/09	378.71	296.65	
05/10	357.86	279.42		05/09	379.44	299.44		05/10	380.75	305.27	
05/11	357.86	279.42		05/10	368.90	288.20		05/11	379.71	296.89	
05/12	357.86	279.42		05/11	379.44	299.44		05/12	381.16	305.59	
05/13	357.86	279.42		05/12	378.75	295.80		05/13	379.98	296.58	
05/14	357.86	279.42		05/13	378.75	295.80		05/14	381.16	305.59	
05/15	357.86	279.42		05/14	368.23	287.68		05/15	379.98	296.86	
05/16	357.86	279.42		05/15	347.18	271.24		05/16	380.19	287.02	
05/17	357.86	279.42		05/16	367.71	279.49		05/17	391.37	305.76	
05/18	346.12	270.41		05/17	347.18	271.24		05/18	335.46	282.06	
05/19	346.12	270.41		05/18	357.71	279.88		05/19	391.37	305.76	
05/20	346.12	270.41		05/19	357.71	279.88		05/20	402.55	314.49	
05/21	346.12	270.41		05/20	338.87	263.02		05/21	380.19	287.02	
05/22	173.07	136.21		05/21	336.87	262.02		05/22	223.77	174.82	
05/23	184.60	144.22		05/22	336.87	262.02		05/23	223.77	174.82	
05/24	173.07	136.21		05/23	336.87	262.02		05/24	324.47	253.49	
05/25	173.07	136.21		05/24	336.87	262.02		05/25	348.84	270.87	
05/26	267.68	162.25		05/25	336.87	262.02		05/26	348.84	270.87	
05/27	346.12	270.41		05/26	315.82	246.78		05/27	368.03	279.71	
05/28	346.12	270.41		05/27	273.84	213.70		05/28	348.84	270.87	
05/29	346.12	270.41		05/28	328.14	254.80		05/29	348.84	270.87	
05/30	334.59	261.40		05/29	329.89	262.23		05/30	348.84	270.87	
05/31	346.12	270.41		05/30	283.45	218.83		05/31	348.84	270.87	
06/01	334.59	261.40		05/31	328.89	252.23		06/01	324.47	253.49	
06/02	346.12	270.41		06/01	328.89	252.23		06/02	348.84	270.87	
06/03	346.12	270.41		06/02	328.89	252.23		06/03	348.84	270.87	
06/04	358.32	279.94		06/03	388.31	307.83		06/04	335.55	282.23	
06/05	358.32	279.94		06/04	378.39	288.17		06/05	348.84	270.87	
06/06	358.32	279.94		06/05	388.86	288.17		06/06	348.84	270.87	
06/07	358.32	279.94		06/06	378.39	288.17		06/07	368.03	279.71	
06/08	346.78	270.51		06/07	368.88	288.17		06/08	348.84	270.87	
06/09	388.32	279.94		06/08	378.39	288.17		06/09	388.03	279.71	
06/10	322.58	262.80		06/09	378.39	288.17		06/10	388.03	279.71	
06/11	389.88	288.97		06/10	380.88	288.17		06/11	348.84	270.87	
06/12	389.88	288.97		06/11	379.99	288.07		06/12	335.86	282.23	
06/13	389.88	288.97		06/12	379.99	288.07		06/13	348.84	270.87	
06/14	381.44	288.00		06/13	379.99	288.07		06/14	324.47	253.49	
06/15	389.88	288.97		06/14	380.08	288.17		06/15	335.86	282.23	
06/16	381.44	288.00		06/15	380.08	288.17		06/16	324.47	253.49	
06/17	369.88	288.97		06/16	380.08	288.17		06/17	324.47	253.49	
06/18	369.88	288.97		06/17	380.08	288.17		06/18	324.47	253.49	
06/19	369.88	288.97		06/18	380.18	288.17		06/19	324.47	253.49	
06/20	369.88	288.97		06/19	380.18	288.17		06/20	324.47	253.49	
06/21	369.88	288.97		06/20	380.18	288.17		06/21	324.47	253.49	
06/22	369.88	288.97		06/21	380.18	288.17		06/22	324.47	253.49	
06/23	369.88	288.97		06/22	380.18	288.17		06/23	324.47	253.49	
06/24	369.88	288.97		06/23	380.18	288.17		06/24	324.47	253.49	
06/25	369.88	288.97		06/24	380.18	288.17		06/25	324.47	253.49	

Daily Reported Glass Production & Estimated SO2 Emissions
"B" Furnace
Basic Source Test Rate 1.28 LBs SO2/Ton Glass

DATE	Daily SO2 LBs	Daily Glass Tons	COMMENTS	DATE	Daily SO2 LBs	Daily Glass Tons	COMMENTS	DATE	Daily SO2 LBs	Daily Glass Tons	COMMENTS
06/26	368.84	288.97		06/26	368.59	289.74		06/26	348.22	272.08	
06/27	346.76	270.91		06/26	367.37	287.01		06/27	361.53	282.52	
06/28	368.88	288.97		06/27	368.52	277.78		06/28	321.82	251.42	
06/29	368.88	288.97		06/28	331.83	259.24		06/29	348.22	272.08	
06/30	369.56	289.37		06/29	367.37	287.01		06/30	334.84	261.59	
07/01	369.88	288.97		06/30	367.37	287.01		07/01	334.84	261.59	
07/02	369.88	288.97		07/01	353.62	277.78		07/02	334.84	261.59	
07/03	358.32	279.94		07/02	367.37	287.01		07/03	348.22	272.08	
07/04	196.49	163.51		07/03	367.37	287.01		07/04	294.68	230.20	
07/05	164.83	144.48		07/04	260.72	209.69		07/05	321.43	251.12	
07/06	349.88	288.97		07/05	308.12	240.72		07/06	334.84	261.59	
07/07	369.88	288.97		07/06	367.37	287.01		07/07	334.84	261.59	
07/08	369.88	288.97		07/07	367.37	287.01		07/08	334.84	261.59	
07/09	369.88	288.97		07/08	367.37	287.01		07/09	334.84	261.59	
07/10	368.88	288.97		07/09	367.37	287.01		07/10	241.08	188.34	
07/11	358.32	279.94		07/10	367.37	287.01		07/11	361.53	282.52	
07/12	358.32	279.94		07/11	367.03	286.74		07/12	375.01	292.98	
07/13	358.32	279.94		07/12	367.03	286.74		07/13	375.01	292.98	
07/14	346.76	270.91		07/13	367.03	286.74		07/14	375.01	292.98	
07/15	358.32	279.94		07/14	385.19	277.49		07/15	375.01	292.98	
07/16	346.76	270.91		07/15	367.03	287.74		07/16	375.01	292.98	
07/17	358.32	279.94		07/16	367.38	288.99		07/17	375.01	292.98	
07/18	358.32	279.94		07/17	367.38	288.99		07/18	375.01	292.98	
07/19	346.76	270.91		07/18	378.58	299.79		07/19	375.01	292.98	
07/20	358.32	279.94		07/19	366.73	289.51		07/20	375.01	292.98	
07/21	346.76	270.91		07/20	366.73	289.51		07/21	375.01	292.98	
07/22	358.32	279.94		07/21	366.73	289.51		07/22	375.01	292.98	
07/23	346.76	270.91		07/22	358.49	279.48		07/23	375.01	292.98	
07/24	358.32	279.94		07/23	367.28	287.72		07/24	375.01	292.98	
07/25	358.32	279.94		07/24	368.40	277.66		07/25	375.01	292.98	
07/26	346.76	270.91		07/25	368.40	277.66		07/26	375.01	292.98	
07/27	346.76	270.91		07/26	367.28	288.52		07/27	375.01	292.98	
07/28	358.32	279.94		07/27	368.40	277.66		07/28	375.01	292.98	
07/29	358.32	279.94		07/28	368.38	277.65		07/29	375.01	292.98	
07/30	346.76	270.91		07/29	378.96	293.55		07/30	375.01	292.98	
07/31	368.32	279.94		07/30	365.28	277.66		07/31	375.01	292.98	
08/01	368.32	279.94		07/31	367.12	289.61		08/01	398.54	311.38	
08/02	368.22	288.11		08/01	367.12	289.61		08/02	398.54	311.38	
08/03	360.87	281.77		08/02	367.12	289.61		08/03	404.58	318.08	
08/04	360.87	281.77		08/03	367.12	289.61		08/04	404.58	318.08	
08/05	371.26	290.05		08/04	378.89	288.85		08/05	391.81	305.87	
08/06	360.87	281.77		08/05	289.89	285.40		08/06	391.81	305.87	
08/07	372.97	291.38		08/06	368.59	296.40		08/07	391.81	305.87	
08/08	349.74	288.89		08/07	379.42	297.84		08/08	391.81	305.87	
08/09	349.74	288.89		08/08	378.42	297.84		08/09	391.81	305.87	
08/10	368.74	288.88		08/09	378.48	298.47		08/10	391.81	305.87	
08/11	368.74	288.88		08/10	378.48	298.47		08/11	378.48	295.87	
08/12	369.74	288.88		08/11	378.48	298.47		08/12	378.48	295.87	
08/13	369.74	288.88		08/12	378.48	298.47		08/13	378.48	295.87	
08/14	368.74	288.88		08/13	378.48	298.47		08/14	378.48	295.87	
08/15	358.18	278.83		08/14	378.48	298.47		08/15	378.48	295.87	
08/16	369.74	288.88		08/15	378.48	298.47		08/16	378.48	295.87	
08/17	358.18	278.83		08/16	378.48	298.47		08/17	378.48	295.87	
08/18	368.74	288.88		08/17	378.48	298.47		08/18	368.40	288.53	
08/19	368.74	288.88		08/18	379.12	298.18		08/19	368.40	288.53	
08/20	335.08	261.78		08/19	379.12	298.18		08/20	362.42	278.33	
08/21	335.08	261.78		08/20	379.12	298.18		08/21	368.48	288.53	
08/22	333.82	252.78		08/21	390.34	304.88		08/22	378.53	295.73	
08/23	323.52	252.78		08/22	400.80	313.20		08/23	362.42	278.33	

Daily Reported Glass Production & Estimated SO2 Emissions
"G" Furnace
Basis Source Test Rate 1.28 LBs SO2/Ton Glass

DATE	Daily SO2 LBs	Daily Glass Tons	COMMENTS	DATE	Daily SO2 LBs	Daily Glass Tons	COMMENTS	DATE	Daily SO2 LBs	Daily Glass Tons	COMMENTS
08/24	335.08	261.78		08/23	390.34	304.88		08/24	338.38	265.14	
08/25	288.91	225.71		08/24	400.90	313.20		08/25	338.38	265.14	
08/26	338.17	281.85		08/25	390.34	304.98		08/26	338.38	265.14	
08/27	346.73	270.88		08/26	400.90	313.20		08/27	338.38	265.14	
08/28	335.17	281.85		08/27	400.90	313.20		08/28	338.38	265.14	
08/29	335.17	281.85		08/28	358.68	281.23		08/29	325.87	264.35	
08/30	338.17	281.85		08/29	184.76	231.87		08/30	338.80	264.53	
08/31	335.17	281.85		08/30	83.30	49.45		08/31	338.80	264.53	
09/01	335.17	281.85		08/31	83.30	48.48		09/01	338.60	264.53	
09/02	358.32	279.94		09/01	105.80	82.42		09/02	312.95	244.18	
09/03	346.76	270.31		09/02	263.74	208.85		09/03	325.87	264.35	
09/04	346.76	270.33		09/03	253.20	197.71		09/04	286.50	223.83	
09/05	358.35	279.98		09/04	388.24	293.47		09/05	338.60	264.53	
09/06	231.19	180.82		09/05	389.24	288.47		09/06	338.60	264.53	
09/07	104.04	81.28		09/06	388.24	288.47		09/07	338.60	264.53	
09/08	358.35	279.98		09/07	389.24	288.47		09/08	338.80	264.53	
09/09	346.76	270.33		09/08	379.78	288.71		09/09	338.60	264.53	
09/10	346.76	270.33		09/09	378.84	288.78		09/10	338.60	264.53	
09/11	358.35	279.98		09/10	378.84	288.78		09/11	288.48	223.82	
09/12	346.76	270.33		09/11	388.28	288.50		09/12	351.60	274.88	
09/13	358.35	279.98		09/12	378.84	288.78		09/13	364.82	284.86	
09/14	369.81	288.99		09/12	348.28	268.80		09/14	351.80	274.88	
09/15	369.81	288.99		09/14	348.28	268.80		09/15	377.84	295.03	
09/16	369.82	289.00		09/15	368.28	288.50		09/16	377.84	295.03	
09/17	369.82	289.00		09/16	368.28	288.50		09/17	377.84	295.03	
09/18	369.82	289.00		09/17	369.28	288.50		09/18	377.84	295.03	
09/19	369.82	289.00		09/18	316.53	447.28		09/19	377.84	295.03	
09/20	369.82	289.00		09/19	357.52	278.31		09/20	390.87	305.21	
09/21	369.82	289.00		09/20	348.83	271.04		09/21	390.87	305.21	
09/22	369.82	289.00		09/21	348.83	271.04		09/22	390.87	305.21	
09/23	369.82	289.00		09/22	364.51	277.27		09/23	390.87	305.21	
09/24	369.82	289.00		09/23	368.34	288.42		09/24	377.88	295.08	
09/25	369.82	289.00		09/24	368.34	288.42		09/25	364.88	284.88	
09/26	358.92	280.41		09/25	364.81	277.27		09/26	364.83	284.87	
09/27	358.92	280.41		09/26	364.81	277.27		09/27	364.83	284.87	
09/28	358.92	280.41		09/27	354.81	277.27		09/28	364.83	284.87	
09/29	358.92	280.41		09/28	354.81	277.27		09/29	377.88	295.04	
09/30	358.92	280.41		09/29	354.81	277.27		09/30	377.88	295.04	
10/01	347.34	271.38		09/30	385.34	281.51		10/01	377.88	295.04	
10/02	347.34	271.38		10/01	344.46	281.11		10/02	380.43	305.02	
10/03	358.92	280.41		10/02	334.03	281.96		10/03	380.43	305.02	
10/04	347.34	271.38		10/03	334.03	280.98		10/04	380.43	305.02	
10/05	358.92	280.41		10/04	334.03	280.98		10/05	380.43	305.02	
10/06	347.34	271.38		10/05	334.03	280.98		10/06	380.43	305.02	
10/07	358.92	280.41		10/06	344.48	281.11		10/07	377.88	295.04	
10/08	347.34	271.38		10/07	334.68	281.38		10/08	383.80	307.66	
10/09	347.34	271.38		10/08	334.68	281.38		10/09	388.92	303.84	
10/10	347.34	271.38		10/09	348.04	289.60		10/10	388.92	303.84	
10/11	358.92	280.41		10/10	348.04	289.60		10/11	388.92	303.84	
10/12	312.81	244.23		10/11	348.04	289.60		10/12	377.14	294.64	
10/13	198.83	153.77		10/12	348.04	289.60		10/13	377.14	294.64	
10/14	370.51	289.48		10/13	348.04	289.60		10/14	377.14	294.64	
10/15	358.92	280.41		10/14	368.88	288.98		10/15	377.14	294.64	
10/16	358.92	280.41		10/15	368.88	288.98		10/16	377.14	294.64	
10/17	370.51	289.48		10/16	368.88	288.98		10/17	377.14	294.64	
10/18	370.51	289.48		10/17	358.48	277.73		10/18	377.14	294.64	
10/19	358.92	280.41		10/18	365.88	283.90		10/19	377.14	294.64	
10/20	358.92	280.41		10/19	365.88	283.90		10/20	377.14	294.64	
10/21	358.92	280.41		10/20	355.48	277.73		10/21	377.14	294.64	

Daily Reported Glass Production & Estimated SO2 Emissions
"B" Furnace
Basic Source Test Rate 1.28 LBs SO2/Ton Glass

DATE	Daily SO2 LBs	Daily Glass Tons	COMMENTS	DATE	Daily SO2 LBs	Daily Glass Tons	COMMENTS	DATE	Daily SO2 LBs	Daily Glass Tons	COMMENTS
10/22	358.82	280.41		10/21	355.48	277.73		10/22	388.92	303.84	
10/23	347.34	271.36		10/22	355.49	277.73		10/23	388.82	303.84	
10/24	347.34	271.36		10/23	345.04	268.56		10/24	388.92	303.84	
10/25	358.92	280.41		10/24	346.04	269.56		10/25	377.14	294.04	
10/26	347.34	271.36		10/25	339.37	262.79		10/26	364.65	284.65	
10/27	347.34	271.36		10/26	336.37	262.76		10/27	364.65	284.65	
10/28	382.08	298.50		10/27	338.37	262.79		10/28	377.84	298.06	
10/29	382.08	298.50		10/28	336.37	262.79		10/29	384.89	284.65	
10/30	361.20	282.18		10/29	325.85	254.57		10/30	377.88	298.05	
10/31	369.78	286.55		10/30	283.61	221.72		10/31	364.65	284.65	
11/01	402.29	314.29		10/31	338.37	262.79		11/01	377.88	295.05	
11/02	378.82	295.80		11/01	387.90	287.42		11/02	378.28	285.53	
11/03	366.78	288.58		11/02	368.88	271.09		11/03	358.87	278.68	
11/04	368.79	288.55		11/03	348.88	271.09		11/04	378.28	295.63	
11/05	366.78	286.55		11/04	336.37	262.79		11/05	358.87	278.68	
11/06	367.58	287.25		11/05	338.37	262.79		11/06	364.67	278.68	
11/07	367.58	287.25		11/06	338.37	262.79		11/07	367.46	287.09	
11/08	355.83	277.99		11/07	318.34	248.78		11/08	358.87	278.68	
11/09	358.83	277.99		11/08	318.34	248.78		11/09	358.87	278.68	
11/10	387.58	287.25		11/09	328.85	264.57		11/10	358.87	278.68	
11/11	385.17	285.28		11/10	325.85	254.57		11/11	358.87	278.68	
11/12	369.92	281.19		11/11	318.34	248.78		11/12	378.28	285.53	
11/13	342.92	287.91		11/12	328.84	254.56		11/13	378.28	285.53	
11/14	349.07	272.71		11/13	338.38	262.77		11/14	389.90	312.42	
11/15	339.37	265.13		11/14	387.87	287.40		11/15	368.09	303.98	
11/16	318.97	248.98		11/15	357.39	278.19		11/16	388.09	303.98	
11/17	310.28	242.41		11/16	387.87	287.40		11/17	389.09	303.98	
11/18	318.97	249.88		11/17	384.82	277.20		11/18	389.09	303.98	
11/19	318.97	249.88		11/18	368.25	288.58		11/19	227.77	185.76	
11/20	329.48	257.54		11/19	375.89	283.51		11/20	184.16	143.87	
11/21	329.88	267.85		11/20	386.54	309.81		11/21	184.16	143.87	
11/22	338.37	285.13		11/21	396.56	309.81		11/22	185.00	182.34	
11/23	310.39	242.41		11/22	388.58	308.81		11/23	314.18	245.43	
11/24	174.53	138.35		11/23	388.56	308.81		11/24	378.18	298.21	
11/25	182.82	151.50		11/24	375.89	293.81		11/25	378.18	298.21	
11/26	38.78	30.30		11/25	378.38	288.81		11/26	378.15	298.21	
11/27	48.88	37.88		11/26	338.35	282.77		11/27	378.15	298.21	
11/28	56.18	45.48		11/27	282.79	221.71		11/28	357.48	278.28	
11/29	68.19	46.48		11/28	188.71	164.02		11/29	338.81	282.35	
11/30	261.80	204.53		11/29	178.89	151.89		11/30	338.81	282.35	
12/01	338.37	285.13		11/30	188.85	131.88		12/01	338.81	282.35	
12/02	389.19	280.62		12/01	315.32	248.54		12/02	338.81	282.35	
12/03	360.87	282.01		12/02	388.89	303.32		12/03	338.81	282.35	
12/04	371.88	290.30		12/03	378.38	295.61		12/04	346.84	270.97	
12/05	380.87	282.01		12/04	375.89	283.61		12/05	346.84	270.97	
12/06	360.87	282.01		12/05	286.12	301.89		12/06	357.88	279.44	
12/07	371.82	290.33		12/06	388.12	301.88		12/07	387.88	279.44	
12/08	381.01	282.04		12/07	388.12	301.88		12/08	357.88	279.44	
12/09	381.01	282.04		12/08	388.12	301.88		12/09	357.88	279.44	
12/10	381.01	282.04		12/09	388.12	301.88		12/10	357.88	279.44	
12/11				12/10	375.89	292.51		12/11	357.88	279.44	
12/12				12/11	375.89	292.51		12/12	357.88	279.44	
12/13				12/12	378.89	283.61		12/13	357.88	279.44	
12/14				12/13	368.25	288.35		12/14	357.88	279.44	
12/15				12/14	368.25	288.35		12/15	357.88	279.44	
12/16				12/15	378.89	283.61		12/16	357.88	279.44	
12/17				12/16	378.89	283.61		12/17	387.88	279.44	
12/18				12/17	244.38	205.66		12/18	338.09	282.50	
				12/18	244.38	205.66		12/19	346.84	270.97	

Daily Reported Glass Production & Estimated SO2 Emissions
"B" Furnace
Basis: Source Test Rate 1.28 LBs SO2/Ton Glass

DATE	Daily SO2 LBs	Daily Glass Tons	COMMENTS	DATE	Daily SO2 LBs	Daily Glass Tons	COMMENTS	DATE	Daily SO2 LBs	Daily Glass Tons	COMMENTS
12/20				12/19	344.38	269.05		12/20	346.84	270.97	
12/21				12/20	344.38	269.05		12/21	346.84	270.97	
12/22				12/21	344.38	269.05		12/22	337.63	263.77	
12/23				12/22	116.82	90.33		12/23	242.89	188.89	
12/24				12/23	63.07	49.37		12/24	63.31	49.46	
12/25				12/24	21.02	16.42		12/25	63.31	49.46	
12/26				12/25	21.02	16.42		12/26	63.31	49.46	
12/27				12/26	21.02	16.42		12/27	63.31	49.46	
12/28				12/27	21.02	16.42		12/28	63.31	49.46	
12/29				12/28	21.02	16.42		12/29	63.31	49.46	
12/30				12/29	21.02	16.42		12/30	64.40	65.94	
12/31				12/30	73.57	57.48		12/31	64.40	65.94	
01/01				12/31	189.20	147.81					
Totals	118198	92341		Totals	128668	98877		Totals	130669	101937	
	59.10				63.33				65.33		

12/1/08 to			12/1/07 to		
11/30/09	122876	95997 Tons Glass	11/30/08	128376	88731 Tons Glass
	61.44	Tons SO2		63.19	Tons SO2

Daily Reported Glass Production & Estimated SO2 Emissions
"C" Furnace
Basic Source Test Rate 2.63 LBs SO2/Ton Glass

DATE	Daily SO2 LBs	Daily Glass Tons	COMMENTS	DATE	Daily SO2 LBs	Daily Glass Tons	COMMENTS	DATE	Daily SO2 LBs	Daily Glass Tons	COMMENTS
2009				2009				2007			
01/01	552.88	210.25		01/01	226.12	89.40		01/01	217.58	82.73	
01/02	657.89	328.89		01/02	287.28	109.27		01/02	670.32	330.92	
01/03	684.73	336.40		01/03	767.82	288.07		01/03	908.89	344.71	
01/04	912.58	346.99		01/04	914.40	347.68		01/04	924.71	351.60	
01/05	912.58	346.99		01/05	914.40	347.68		01/05	924.71	381.80	
01/06	684.73	336.40		01/06	914.40	347.68		01/06	906.86	344.71	
01/07	912.40	346.92		01/07	914.40	347.68		01/07	924.71	351.60	
01/08	912.40	346.92		01/08	914.40	347.68		01/08	942.88	358.60	
01/09	912.40	346.92		01/09	888.26	337.74		01/09	924.71	351.60	
01/10	912.40	346.92		01/10	914.40	347.68		01/10	924.71	351.60	
01/11	684.73	336.40		01/11	940.51	357.81		01/11	960.98	366.38	
01/12	684.73	336.40		01/12	940.51	357.81		01/12	908.59	344.71	
01/13	912.40	346.92		01/13	914.40	347.68		01/13	942.86	358.50	
01/14	912.40	346.92		01/14	914.40	347.68		01/14	924.71	351.60	
01/15	912.40	346.92		01/15	940.51	357.81		01/15	924.71	351.60	
01/16	940.04	357.43		01/16	914.40	347.68		01/16	924.71	351.60	
01/17	912.40	346.92		01/17	940.51	357.81		01/16	924.71	351.60	
01/18	912.40	346.92		01/18	914.40	347.68		01/17	942.86	358.50	
01/19	912.40	346.92		01/19	914.40	347.68		01/18	939.99	357.41	
01/20	912.40	346.92		01/20	940.51	357.81		01/19	939.99	357.41	
01/21	912.40	346.92		01/21	914.40	347.68		01/20	939.99	357.41	
01/22	912.40	346.92		01/22	914.40	347.68		01/21	939.99	357.41	
01/23	912.40	346.92		01/23	940.51	357.81		01/22	939.99	357.41	
01/24	912.40	346.92		01/24	914.40	347.68		01/23	938.99	357.03	
01/25	912.40	346.92		01/25	940.51	357.81		01/24	933.94	355.11	
01/26	912.40	346.92		01/26	914.40	347.68		01/25	937.78	341.36	
01/27	912.40	346.92		01/27	940.51	357.81		01/26	918.16	349.49	
01/28	912.40	346.92		01/28	914.40	347.68		01/27	932.62	364.81	
01/29	684.73	336.40		01/29	940.51	357.81		01/28	932.82	354.61	
01/30	684.73	336.40		01/30	914.40	347.68		01/29	932.82	354.61	
01/31	684.73	336.40		01/31	940.51	357.81		01/30	932.82	354.61	
02/01	684.73	336.40		02/01	914.40	347.68		01/31	932.82	354.61	
02/02	912.40	346.92		02/02	914.40	347.68		02/01	932.82	354.61	
02/03	912.40	346.92		02/03	914.40	347.68		02/02	930.57	353.83	
02/04	912.40	346.92		02/04	914.40	347.68		02/03	930.57	353.83	
02/05	684.73	336.40		02/05	940.51	357.81		02/04	930.57	353.83	
02/06	912.40	346.92		02/06	940.51	357.81		02/05	930.57	353.83	
02/07	912.40	346.92		02/07	914.40	347.68		02/06	930.57	353.83	
02/08	912.40	346.92		02/08	940.51	357.81		02/07	930.57	353.83	
02/09	912.40	346.92		02/09	914.40	347.68		02/08	908.43	345.41	
02/10	912.40	346.92		02/10	940.51	357.81		02/09	930.60	353.84	
02/11	912.40	346.92		02/11	914.40	347.68		02/10	930.60	353.84	
02/12	912.40	346.92		02/12	914.40	347.68		02/11	930.57	353.83	
02/13	912.40	346.92		02/13	888.26	337.74		02/12	930.57	353.83	
02/14	912.40	346.92		02/14	914.40	347.68		02/13	930.57	353.83	
02/15	912.40	346.92		02/15	914.40	347.68		02/14	930.57	353.83	
02/16	912.40	346.92		02/16	888.26	337.74		02/15	884.11	328.58	
02/17	912.40	346.92		02/17	914.40	347.68		02/16	952.74	382.26	
02/18	912.40	346.92		02/18	914.40	347.68		02/17	930.57	353.83	
02/19	912.40	346.92		02/19	888.26	337.74		02/18	930.57	353.83	
02/20	912.40	346.92		02/20	914.40	347.68		02/19	930.57	353.83	
02/21	912.40	346.92		02/21	914.40	347.68		02/20	930.67	353.83	
02/22	912.40	346.92		02/22	888.26	337.74		02/21	952.74	382.26	
02/23	912.40	346.92		02/23	914.40	347.68		02/22	930.57	353.83	
02/24	684.73	336.40		02/24	888.26	337.74		02/23	930.67	353.83	
02/25	912.40	346.92		02/25	757.82	288.07		02/24	930.57	353.83	
02/26	912.40	346.92		02/26	914.40	347.68		02/25	930.57	353.83	
								02/26	791.17	278.01	

Daily Reported Glass Production & Estimated SO2 Emissions
"C" Furnace
Basis: Source Test Rate 2.63 LBs SO2/Ton Glass

DATE	Daily SO2 LBs	Daily Glass Tons	COMMENTS	DATE	Daily SO2 LBs	Daily Glass Tons	COMMENTS	DATE	Daily SO2 LBs	Daily Glass Tons	COMMENTS	
02/27	903.72	343.82		02/27	914.40	347.88		02/27	941.97	320.14		
02/28	903.59	343.57		02/28	914.40	347.88		02/28	930.57	353.83		
03/01	912.40	346.92		02/29	914.40	347.88		03/01	930.57	353.83		
03/02	929.45	316.38		03/01	914.40	347.88		03/02	930.57	353.83		
03/03	901.81	304.67		03/02	940.81	357.81		03/03	952.74	362.26		
03/04	912.40	346.92		03/03	988.28	337.74		03/04	952.74	362.26		
03/05	882.84	335.88		03/04	940.81	357.81		03/05	982.74	362.26		
03/06	910.43	345.17		03/05	922.90	395.87		03/06	930.57	353.83		
03/07	910.43	345.17		03/06	418.01	168.94		03/07	952.74	362.26		
03/08	892.84	335.88		03/07	927.02	338.41		03/08	952.74	362.26		
03/09	889.52	336.22		03/08	934.02	317.89		03/09	952.74	362.26		
03/10	909.30	345.74		03/09	914.40	347.88		03/10	952.74	362.26		
03/11	909.30	345.74		03/10	914.40	347.88		03/11	930.80	353.84		
03/12	883.31	335.86		03/11	914.40	347.88		03/12	952.74	362.26		
03/13	909.30	345.74		03/12	914.40	347.88		03/13	930.57	353.83		
03/14	883.31	335.88		03/13	914.40	347.88		03/14	952.74	362.26		
03/15	909.30	345.74		03/14	914.40	347.88		03/15	952.74	362.26		
03/16	909.30	345.74		03/15	914.40	347.88		03/16	982.74	362.26		
03/17	909.30	345.74		03/16	914.40	347.88		03/17	982.74	362.26		
03/18	909.30	345.74		03/17	940.81	357.81		03/18	952.74	362.26		
03/19	883.31	335.88		03/18	914.40	347.88		03/19	944.38	369.07		
03/20	909.30	345.74		03/19	914.40	347.88		03/20	935.23	355.60		
03/21	909.30	345.74		03/20	952.17	382.04		03/21	935.23	355.60		
03/22	909.30	345.74		03/21	852.17	362.04		03/22	914.90	347.87		
03/23	909.30	345.74		03/22	928.94	352.21		03/23	935.23	355.60		
03/24	909.30	345.74		03/23	928.94	352.21		03/24	935.23	355.60		
03/25	909.30	345.74		03/24	928.94	352.21		03/25	914.80	347.87		
03/26	909.30	345.74		03/25	928.94	352.21		03/26	935.23	355.60		
03/27	909.30	345.74		03/26	952.17	382.04		03/27	935.23	355.60		
03/28	909.30	345.74		03/27	859.27	326.72		03/28	914.90	347.87		
03/29	909.30	345.74		03/28	928.94	352.21		03/29	935.23	355.60		
03/30	909.30	345.74		03/29	952.17	382.04		03/30	894.57	340.14		
03/31	935.28	385.62		03/30	928.94	352.21		03/31	935.23	355.60		
04/01	909.30	345.74		03/31	928.94	352.21		04/01	955.58	363.33		
04/02	883.31	335.88		04/01	882.17	362.04		04/02	955.58	363.33		
04/03	887.32	325.98		04/02	939.17	357.10		04/03	955.58	363.33		
04/04	909.30	345.74		04/03	939.17	357.10		04/04	958.58	363.33		
04/05	909.30	345.74		04/04	916.27	348.39		04/05	935.23	355.60		
04/06	935.28	355.62		04/05	916.27	348.39		04/06	939.39	358.04		
04/07	909.30	345.74		04/06	916.27	348.39		04/07	939.39	358.04		
04/08	909.30	345.74		04/07	916.27	348.39		04/08	954.74	363.78		
04/09	909.30	345.74		04/08	919.27	348.39		04/09	936.41	356.05		
04/10	909.30	345.74		04/09	916.27	348.39		04/10	958.77	363.79		
04/11	909.30	345.74		04/10	916.27	348.39		04/11	936.41	356.05		
04/12	935.28	385.62		04/11	892.87	339.42		04/12	936.41	356.05		
04/13	909.30	345.74		04/12	918.88	348.13		04/13	956.77	363.79		
04/14	935.28	385.65		04/13	892.87	339.42		04/14	956.77	363.79		
04/15	909.30	345.74		04/14	915.85	348.13		04/15	936.41	356.05		
04/16	935.28	385.65		04/15	892.87	339.42		04/16	936.41	356.05		
04/17	909.30	345.74		04/16	892.87	339.42		04/17	956.77	363.79		
04/18	909.30	345.74		04/17	892.87	339.42		04/18	936.41	356.05		
04/19	909.30	345.74		04/18	892.87	339.42		04/19	956.77	363.79		
04/20	909.30	345.74		04/19	892.87	339.42		04/20	935.41	355.87		
04/21	909.30	345.74		04/20	892.87	339.42		04/21	957.18	363.84		
04/22	883.31	335.88		04/21	892.87	339.42		04/22	936.41	356.05		
04/23	909.30	345.74		04/22	892.87	339.42		04/23	957.18	363.84		
04/24	909.30	345.74		04/23	914.90	347.87		04/24	936.41	356.05		
04/25	909.30	345.74		04/24	903.59	343.57		04/25	957.18	363.84		
				04/25	903.59	343.57						

Daily Reported Glass Production & Estimated SO2 Emissions
"C" Furnace
Basis Source Test Rate 2.63 LBs SO2/Ton Glass

DATE	Daily SO2 LBs	Daily Glass Tons	COMMENTS	DATE	Daily SO2 LBs	Daily Glass Tons	COMMENTS	DATE	Daily SO2 LBs	Daily Glass Tons	COMMENTS	
04/26	809.30	345.74		04/26	928.83	351.96		04/28	938.41	355.87		
04/27	883.31	335.86		04/26	903.59	343.57		04/27	938.41	355.87		
04/28	898.72	341.72		04/27	928.83	351.96		04/28	938.41	355.87		
04/29	907.14	344.92		04/28	903.59	343.57		04/29	938.41	355.87		
04/30	907.14	344.92		04/29	928.83	351.96		04/30	938.41	355.87		
05/01	907.14	344.92		04/30	903.59	343.57		05/01	874.36	258.41		
05/02	907.14	344.92		05/01	903.59	343.57		05/02	717.88	272.98		
05/03	882.63	335.80		05/02	921.45	350.38		05/03	938.41	355.87		
05/04	907.14	344.92		05/03	901.41	342.74		05/04	938.41	355.87		
05/05	907.14	344.92		05/04	921.45	350.38		05/05	987.18	383.94		
05/06	907.14	344.92		05/05	901.41	342.74		05/06	938.41	355.87		
05/07	907.14	344.92		05/06	580.91	220.88		05/07	891.91	339.13		
05/08	907.14	344.92		05/07	781.22	297.04		05/08	870.14	330.85		
05/09	907.14	344.92		05/08	921.45	350.38		05/09	938.41	355.87		
05/10	931.88	354.24		05/09	921.45	350.38		05/10	913.86	347.40		
05/11	931.88	354.24		05/10	921.45	350.38		05/11	938.41	355.87		
05/12	907.14	344.92		05/11	921.45	350.38		05/12	914.11	347.57		
05/13	907.14	344.92		05/12	921.45	350.38		05/13	938.41	355.87		
05/14	907.14	344.92		05/13	921.45	350.38		05/14	914.11	347.57		
05/15	907.17	344.93		05/14	921.45	350.38		05/15	914.11	347.57		
05/16	931.88	354.25		05/15	921.45	350.38		05/16	938.41	355.87		
05/17	907.17	344.93		05/16	921.45	350.38		05/17	914.40	347.88		
05/18	907.17	344.93		05/17	921.45	350.38		05/18	805.34	308.29		
05/19	931.88	354.25		05/18	901.41	342.74		05/19	914.40	347.88		
05/20	907.17	344.93		05/19	820.97	238.11		05/20	938.41	355.87		
05/21	882.65	335.81		05/19	921.37	350.33		05/21	914.36	347.86		
05/22	888.44	223.74		05/20	901.37	342.72		05/22	914.92	347.88		
05/23	888.44	223.74		05/21	901.35	342.72		05/23	938.70	358.18		
05/24	888.44	223.74		05/22	921.37	350.33		05/24	914.92	347.88		
05/25	888.44	223.74		05/23	881.31	335.10		05/25	938.88	358.22		
05/26	582.00	251.71		05/24	901.35	342.72		05/26	938.88	358.22		
05/27	907.17	344.93		05/25	781.13	297.02		05/27	938.88	358.22		
05/28	907.17	344.93		05/26	340.61	126.47		05/28	918.42	348.07		
05/29	907.17	344.93		05/27	721.07	274.17		05/29	937.33	356.38		
05/30	882.65	335.81		05/28	901.38	342.72		05/30	937.33	356.38		
05/31	784.58	289.32		05/29	921.37	350.33		05/31	918.42	348.07		
06/01	539.39	205.09		05/30	901.38	342.72		06/01	937.33	356.38		
06/02	583.85	214.38		05/31	901.38	342.72		06/02	918.42	348.07		
06/03	583.85	214.39		06/01	901.35	342.72		06/03	937.33	356.38		
06/04	584.77	214.74		06/02	921.37	350.33		06/04	989.00	364.84		
06/05	584.77	214.74		06/03	901.38	342.72		06/05	937.33	356.38		
06/06	584.77	214.74		06/04	804.58	243.94		06/06	937.33	356.38		
06/07	584.77	214.74		06/05	928.83	352.33		06/07	937.33	356.38		
06/08	589.33	224.08		06/06	904.58	343.94		06/08	937.33	356.38		
06/09	834.87	317.44		06/07	928.83	352.33		06/09	937.33	356.38		
06/10	884.00	338.12		06/08	904.58	343.94		06/10	958.58	364.88		
06/11	908.53	345.45		06/09	904.58	343.94		06/11	908.58	368.80		
06/12	908.53	345.45		06/10	904.58	343.94		06/12	937.73	356.55		
06/13	884.00	338.12		06/11	908.01	344.11		06/13	937.73	356.55		
06/14	908.53	345.45		06/12	882.92	335.71		06/14	937.73	356.55		
06/15	908.53	345.45		06/13	882.92	335.71		06/15	937.73	356.55		
06/16	908.53	345.45		06/14	908.38	244.62		06/16	894.12	339.97		
06/17	884.00	338.12		06/15	884.33	339.21		06/17	937.73	356.55		
06/18	884.00	338.12		06/16	908.38	344.82		06/18	937.73	356.55		
06/19	933.10	354.79		06/17	882.88	335.89		06/19	937.73	356.55		
06/20	908.53	345.45		06/18	928.44	333.02		06/20	937.73	356.55		
06/21	908.53	345.45		06/19	908.38	344.82		06/21	937.73	356.55		
06/22	908.53	345.45		06/20	928.44	333.02		06/22	922.55	350.82		
				06/21	908.38	344.82						

Daily Reported Glass Production & Estimated SO2 Emissions
"C" Furnace
Basis Source Test Rate 2.63 LBs SO2/Ton Glass

DATE	Daily SO2 LBs	Daily Glass Tons	COMMENTS	DATE	Daily SO2 LBs	Daily Glass Tons	COMMENTS	DATE	Daily SO2 LBs	Daily Glass Tons	COMMENTS
06/23	908.53	345.46		06/22	908.38	344.92		06/23	935.15	355.57	
06/24	933.10	354.78		06/23	928.44	353.02		06/24	935.15	355.57	
06/25	908.53	345.46		06/24	908.35	344.82		06/25	935.15	355.57	
06/26	908.53	345.46		06/25	928.44	353.02		06/26	911.58	346.51	
06/27	908.53	345.46		06/26	908.32	345.37		06/27	939.23	357.12	
06/28	908.53	345.45		06/27	908.32	345.37		06/28	939.23	357.12	
06/29	908.53	345.45		06/28	908.32	345.37		06/29	911.58	346.51	
06/30	908.53	345.45		06/29	932.86	354.70		06/30	939.23	357.12	
07/01	908.53	345.45		06/30	932.86	354.70		07/01	939.23	357.12	
07/02	738.29	281.10		07/01	908.32	345.37		07/02	938.23	357.12	
07/03	908.53	345.46		07/02	908.32	345.37		07/03	939.23	357.12	
07/04	933.10	354.78		07/03	932.86	354.70		07/04	801.10	304.60	
07/05	908.53	345.45		07/04	738.48	280.03		07/05	828.71	316.10	
07/06	933.10	354.79		07/05	859.22	326.70		07/06	939.23	357.12	
07/07	933.10	354.79		07/06	908.32	345.37		07/07	939.23	357.12	
07/08	933.10	354.79		07/07	932.86	354.70		07/08	911.58	346.51	
07/09	933.10	354.79		07/08	908.32	345.37		07/09	939.23	357.12	
07/10	933.10	354.79		07/09	908.32	345.37		07/10	911.58	346.51	
07/11	933.10	354.79		07/10	908.32	345.37		07/11	938.23	357.12	
07/12	933.10	354.79		07/11	931.89	354.37		07/12	911.58	346.51	
07/13	987.66	364.13		07/12	907.48	348.05		07/13	939.23	357.12	
07/14	933.10	354.79		07/13	907.48	348.05		07/14	938.23	357.12	
07/15	933.10	354.79		07/14	907.48	348.05		07/15	939.23	357.12	
07/16	908.53	345.46		07/15	907.48	348.05		07/16	911.58	346.51	
07/17	933.10	354.79		07/16	908.43	348.79		07/17	911.58	346.51	
07/18	933.10	354.79		07/17	909.43	348.79		07/18	939.23	357.12	
07/19	908.53	345.46		07/18	908.14	348.30		07/19	938.23	357.12	
07/20	933.10	354.79		07/19	908.14	348.30		07/20	939.23	357.12	
07/21	933.10	354.79		07/20	867.28	281.31		07/21	939.23	357.12	
07/22	884.00	336.12		07/21	908.14	348.30		07/22	939.23	357.12	
07/23	884.00	336.12		07/22	909.43	348.79		07/23	909.08	345.55	
07/24	884.00	336.12		07/23	909.43	348.79		07/24	836.83	306.13	
07/25	884.00	336.12		07/24	909.43	348.79		07/25	998.08	346.66	
07/26	908.53	345.45		07/25	884.84	336.44		07/26	936.92	356.12	
07/27	834.87	317.44		07/26	784.53	299.08		07/27	909.08	345.68	
07/28	884.00	336.12		07/27	911.09	308.40		07/28	940.20	357.48	
07/29	884.00	336.12		07/28	809.43	349.79		07/29	940.20	357.48	
07/30	908.53	345.45		07/29	884.84	336.44		07/30	912.53	346.97	
07/31	908.53	345.45		07/30	884.84	336.44		07/31	940.20	357.48	
08/01	884.00	336.12		07/31	909.43	348.79		08/01	912.53	346.97	
08/02	823.84	301.27		08/01	884.84	336.44		08/02	940.20	357.48	
08/03	843.42	316.80		08/02	908.42	345.79		08/03	912.53	346.97	
08/04	910.16	346.07		08/03	908.42	345.79		08/04	912.53	346.97	
08/05	910.16	346.07		08/04	908.77	345.84		08/05	940.20	357.48	
08/06	963.71	368.43		08/05	908.14	348.30		08/06	940.20	357.48	
08/07	910.37	346.18		08/06	908.14	348.30		08/07	912.53	346.97	
08/08	933.10	354.79		08/07	908.14	348.30		08/08	940.20	357.48	
08/09	933.10	354.79		08/08	908.14	348.30		08/09	884.89	336.46	
08/10	908.53	345.46		08/09	908.14	348.30		08/10	912.53	346.97	
08/11	933.10	354.79		08/10	908.14	348.30		08/11	940.20	357.48	
08/12	933.10	354.79		08/11	908.14	348.30		08/12	940.20	357.48	
08/13	933.10	354.79		08/12	908.14	348.30		08/13	912.53	346.97	
08/14	933.10	354.79		08/13	908.14	348.30		08/14	884.89	336.46	
08/15	933.10	354.79		08/14	908.14	348.30		08/15	884.89	336.46	
08/16	933.10	354.79		08/15	788.42	288.64		08/16	912.53	346.97	
08/17	908.53	345.45		08/16	780.83	289.29		08/17	912.53	346.97	
08/18	938.41	356.67		08/17	908.11	345.29		08/18	913.53	348.97	
08/19	903.48	343.53		08/18	905.11	345.29		08/19	912.53	346.97	

Daily Reported Glass Production & Estimated SO2 Emissions
"C" Furnace
Basis Source Test Rate 2.63 LBs SO2/Ton Glass

DATE	Daily SO2 LBs	Daily Glass Tons	COMMENTS	DATE	Daily SO2 LBs	Daily Glass Tons	COMMENTS	DATE	Daily SO2 LBs	Daily Glass Tons	COMMENTS
08/20	926.65	352.34		08/19	889.01	329.82		08/20	912.53	346.97	
08/21	926.65	352.34		08/20	904.11	345.29		08/21	912.53	346.97	
08/22	903.48	343.53		08/21	984.94	336.49		08/22	912.53	346.97	
08/23	926.65	352.34		08/22	908.81	346.82		08/23	912.53	346.97	
08/24	903.48	343.53		08/23	984.94	336.49		08/24	912.53	346.97	
08/25	971.03	331.19		08/24	908.81	346.82		08/25	912.53	346.97	
08/26	970.21	330.89		08/25	984.94	336.49		08/26	912.53	346.97	
08/27	891.98	339.15		08/26	909.51	346.82		08/27	912.53	346.97	
08/28	891.98	339.15		08/27	909.51	346.82		08/28	912.53	346.97	
08/29	870.21	330.89		08/28	737.46	280.40		08/29	911.61	346.82	
08/30	870.21	330.89		08/29	417.88	158.89		08/30	883.97	336.11	
08/31	881.41	336.94		08/30	122.90	46.73		08/31	911.61	346.82	
09/01	913.18	347.21		08/31	122.90	46.73		09/01	939.23	357.12	
09/02	890.44	336.57		09/01	346.83	93.47		09/02	883.97	338.11	
09/03	906.85	344.43		09/02	614.53	233.88		09/03	359.19	139.65	
09/04	901.77	342.89		09/03	865.37	214.87		09/04	716.23	273.09	
09/05	902.17	343.03		09/04	491.63	186.83		09/05	939.23	357.12	
09/06	601.43	228.66		09/05	585.37	214.87		09/06	911.37	346.53	
09/07	206.74	78.61		09/06	889.96	324.32		09/07	911.37	346.53	
09/08	638.04	242.98		09/07	589.96	224.32		09/08	911.37	346.53	
09/09	606.17	229.29		09/08	889.96	324.32		09/09	939.23	357.12	
09/10	902.17	343.03		09/09	814.53	233.88		09/10	911.37	346.53	
09/11	902.17	343.03		09/10	914.53	233.88		09/11	911.37	346.53	
09/12	920.98	360.17		09/11	888.90	224.32		09/12	939.23	357.12	
09/13	902.17	343.03		09/12	889.96	224.32		09/13	911.37	346.53	
09/14	920.98	360.17		09/13	889.96	224.32		09/14	911.37	346.53	
09/15	902.17	343.03		09/14	914.53	233.88		09/15	911.37	346.53	
09/16	902.17	343.03		09/15	737.46	280.40		09/16	939.99	357.03	
09/17	920.98	360.17		09/16	908.51	346.82		09/17	911.37	346.53	
09/18	906.01	344.49		09/17	908.51	346.82		09/18	911.37	346.53	
09/19	906.01	344.49		09/18	909.51	346.82		09/19	911.37	346.53	
09/20	906.01	344.49		09/19	909.51	346.82		09/20	939.99	357.03	
09/21	924.50	361.82		09/20	906.49	344.76		09/21	911.37	346.53	
09/22	906.01	344.49		09/21	906.88	344.76		09/22	911.37	346.53	
09/23	906.01	344.49		09/22	906.88	344.76		09/23	911.37	346.53	
09/24	906.01	344.49		09/23	906.88	344.76		09/24	911.37	346.53	
09/25	906.01	344.49		09/24	904.58	344.76		09/25	939.73	357.31	
09/26	891.54	338.99		09/25	906.59	344.76		09/26	884.44	336.29	
09/27	891.54	338.99		09/26	931.20	354.07		09/27	939.73	357.31	
09/28	891.54	338.99		09/27	906.89	344.76		09/28	939.73	357.31	
09/29	909.74	345.91		09/28	906.89	344.76		09/29	912.08	346.80	
09/30	909.74	345.91		09/29	908.89	344.76		09/30	939.73	357.31	
10/01	891.54	338.99		09/30	931.20	354.07		10/01	939.73	357.31	
10/02	909.74	345.91		10/01	906.89	344.76		10/02	939.73	357.31	
10/03	909.74	345.91		10/02	931.20	354.07		10/03	939.73	357.31	
10/04	909.74	345.91		10/03	909.89	344.76		10/04	939.73	357.31	
10/05	891.54	338.99		10/04	931.20	354.07		10/05	939.73	357.31	
10/06	891.54	338.99		10/05	906.89	344.76		10/06	939.73	357.31	
10/07	891.54	338.99		10/06	931.20	354.07		10/07	967.82	367.82	
10/08	891.54	338.99		10/07	908.11	345.29		10/08	934.07	366.16	
10/09	891.54	338.99		10/08	883.55	335.95		10/09	949.35	380.97	
10/10	891.54	338.99		10/09	908.11	345.29		10/10	949.35	380.97	
10/11	891.54	338.99		10/10	908.11	345.29		10/11	949.35	380.97	
10/12	909.74	346.91		10/11	908.11	345.29		10/12	949.35	380.97	
10/13	910.37	346.18		10/12	908.11	345.29		10/13	949.35	380.97	
10/14	908.51	345.82		10/13	932.85	364.82		10/14	949.35	380.97	
10/15	908.51	345.82		10/14	908.11	345.29		10/15	922.21	359.85	
10/16	908.51	345.82		10/15	908.11	345.29		10/16	885.33	340.43	

Daily Reported Glass Production & Estimated SO2 Emissions
"C" Furnace
Basic Source Test Rate 2.63 LBs SO2/Ton Glass

DATE	Daily SO2 LBs	Daily Glass Tons	COMMENTS	DATE	Daily SO2 LBs	Daily Glass Tons	COMMENTS	DATE	Daily SO2 LBs	Daily Glass Tons	COMMENTS
10/17	908.51	345.82		10/18	932.88	354.92		10/17	822.21	350.65	
10/18	928.88	353.18		10/17	908.11	348.20		10/18	822.21	350.65	
10/18	909.51	348.82		10/18	932.85	354.92		10/18	822.21	350.65	
10/20	928.89	353.18		10/19	908.11	348.20		10/20	949.35	360.97	
10/21	948.22	360.54		10/20	908.11	348.20		10/21	922.21	350.65	
10/22	949.32	360.96		10/21	908.11	348.20		10/22	922.21	350.65	
10/23	933.08	358.78		10/22	932.85	354.92		10/23	922.21	350.65	
10/24	948.23	360.96		10/23	908.11	348.20		10/24	949.35	360.97	
10/28	929.94	353.59		10/24	908.11	348.20		10/28	822.18	350.63	
10/28	929.94	353.59		10/25	908.11	348.20		10/28	922.16	350.63	
10/27	949.01	360.84		10/26	933.07	354.78		10/28	922.16	350.63	
10/28	929.26	353.33		10/27	908.81	348.44		10/27	949.27	360.94	
10/29	948.61	360.89		10/28	908.81	348.44		10/28	922.16	350.63	
10/30	929.26	353.33		10/29	908.96	344.85		10/29	895.04	340.32	
10/31	929.26	353.33		10/30	908.96	344.85		10/30	922.16	350.63	
11/01	987.33	378.41		10/31	908.96	344.85		10/31	922.16	350.63	
11/02	948.61	360.89		11/01	953.48	382.93		11/01	885.04	340.32	
11/03	929.26	353.33		11/02	930.20	353.89		11/02	922.16	350.63	
11/04	880.64	338.61		11/03	930.20	353.89		11/03	922.16	350.63	
11/06	891.33	338.91		11/04	920.20	353.89		11/04	948.27	360.94	
11/06	891.33	338.91		11/05	920.20	353.89		11/05	922.16	350.63	
11/07	881.33	338.91		11/06	908.86	344.85		11/06	922.16	350.63	
11/08	891.33	338.91		11/07	904.96	344.85		11/07	922.16	350.63	
11/08	810.89	346.27		11/08	908.96	344.85		11/08	922.16	350.63	
11/10	891.33	338.91		11/08	908.86	344.85		11/09	895.04	340.32	
11/11	910.89	346.27		11/09	908.86	344.85		11/10	922.16	350.63	
11/12	910.89	346.27		11/10	930.20	353.89		11/11	922.16	350.63	
11/13	921.48	360.45		11/11	908.96	344.85		11/12	922.16	350.63	
11/14	917.90	349.01		11/12	904.96	344.85		11/13	922.16	350.63	
11/15	917.90	349.01		11/13	930.20	353.89		11/14	895.04	340.32	
11/16	917.90	349.01		11/14	930.20	353.89		11/16	895.04	340.32	
11/17	937.88	368.50		11/15	930.20	353.89		11/16	922.16	350.63	
11/18	957.82	364.19		11/16	904.96	344.85		11/17	895.04	340.32	
11/19	957.82	364.19		11/17	904.96	344.85		11/18	895.04	340.32	
11/20	957.82	364.19		11/18	930.20	353.89		11/19	895.04	340.32	
11/21	957.82	364.19		11/19	904.96	344.85		11/19	922.16	350.63	
11/22	944.49	359.12		11/20	898.96	344.85		11/20	895.04	340.32	
11/23	970.05	368.84		11/21	908.96	344.85		11/21	895.04	340.32	
11/24	949.82	361.15		11/22	908.96	344.85		11/22	597.04	227.01	
11/25	970.05	368.84		11/23	930.20	353.89		11/23	597.04	227.01	
11/26	80.85	30.74		11/24	905.96	344.85		11/24	567.04	227.01	
11/27	101.04	38.42		11/25	908.96	344.85		11/25	597.04	227.01	
11/28	121.24	46.10		11/26	908.96	344.85		11/26	597.01	227.00	
11/29	121.24	46.10		11/27	787.41	291.79		11/27	597.01	227.00	
11/30	242.51	92.21		11/28	874.41	268.43		11/28	824.15	237.32	
12/01	929.53	353.47		11/29	488.09	178.84		11/29	597.01	227.00	
12/02	908.40	346.75		11/30	441.84	168.00		11/30	597.01	227.00	
12/03	908.40	346.75		12/01	720.81	274.11		12/01	597.01	227.00	
12/04	908.40	346.75		12/02	908.96	344.85		12/02	597.01	227.00	
12/05	908.40	346.75		12/03	905.96	344.85		12/03	597.01	227.00	
12/06	908.40	346.75		12/04	908.96	344.85		12/04	824.15	237.32	
12/07	908.40	346.75		12/05	904.96	344.85		12/05	597.01	227.00	
12/08	889.20	338.10		12/06	883.71	338.01		12/06	597.01	227.00	
12/09	904.40	346.75		12/07	883.71	338.01		12/07	597.01	227.00	
12/10	929.53	353.47		12/08	908.96	344.85		12/08	597.01	227.00	
12/11				12/08	930.20	353.89		12/09	597.01	227.00	
12/12				12/10	930.20	353.89		12/10	824.15	237.32	
12/13				12/11	930.20	353.89		12/11	597.01	227.00	
				12/12	908.96	344.85		12/12	597.01	227.00	
								12/13	824.15	237.32	

Daily Reported Glass Production & Estimated SO2 Emissions
"C" Furnace
Basis Source Test Rate 2.63 LBs SO2/Ton Glass

DATE	Daily SO2 LBs	Daily Glass Tons	COMMENTS	DATE	Daily SO2 LBs	Daily Glass Tons	COMMENTS	DATE	Daily SO2 LBs	Daily Glass Tons	COMMENTS	
12/14				12/13	908.86	344.85		12/14	624.16	237.32		
12/15				12/14	930.20	353.69		12/15	597.01	227.00		
12/16				12/15	912.40	346.92		12/16	597.01	227.00		
12/17				12/16	912.40	346.92		12/17	824.16	237.32		
12/18				12/17	840.60	220.76		12/18	597.01	227.00		
12/19				12/18	663.65	182.30		12/19	597.01	227.00		
12/20				12/19	840.60	220.76		12/20	624.16	237.32		
12/21				12/20	840.60	220.76		12/21	597.01	227.00		
12/22				12/21	840.60	220.76		12/22	600.86	228.47		
12/23				12/22	606.27	231.26		12/23	418.01	158.94		
12/24				12/23	528.32	199.74		12/24	130.63	49.67		
12/25				12/24	110.59	42.06		12/25	130.63	49.67		
12/26				12/25	110.59	42.06		12/26	130.63	49.67		
12/27				12/26	110.59	42.06		12/27	130.63	49.67		
12/28				12/27	110.59	42.06		12/28	130.63	49.67		
12/29				12/28	110.59	42.06		12/29	130.63	49.67		
12/30				12/29	248.61	94.61		12/30	182.69	69.54		
12/31				12/30	829.45	315.38		12/31	182.69	69.54		
01/01				12/31	528.32	199.74						
Totals	302698	115083		Totals	312482	119725		Totals	319391	121350		
	151.35				166.24				159.70			

12/1/08 to				12/1/07 to			
11/30/09	314240	119483	Tons Glass	11/30/08	308853	118216	Tons Glass
	187.12		Tons SO2		182.77		Tons SO2

updated 12/11/09

TRACY UV GREEN SULFUR INPUT CALCULATIONS
US Weights (tons/Lbs)

PLANT: Tracy FURNACE: A Batch No.: 09.22A.UV83

Glass Made/Batch 7.3843 Tons

Materials Used	Lbs/Batch
Flint sand-10/18/99	959.00
Byron Sand 4/28/05	4698.0
Santa Cruz-11/02/01	0.0
Soda Ash-10/18/99	1445.0
SMI Lime-09/23/04	1444.0
Salt Cake-11/02/01	29.3
Iron Pyrite-10/18/99	0.0
EP Dust-5/10/05	0.0
Tube Scale	2.5
Carbon	5.10

Lbs/Batch (no cullet)
Lbs/T.G.(no cullet)

Total sulfur (lbs)	
as SO3	as SO2
0.144	0.115
0.470	0.376
0.000	0.000
0.145	0.116
0.144	0.116
16.364	13.091
0.000	0.000
0.000	0.000
0.010	0.008
17.28	13.82
4.68	3.74

Cullet	Percent Cullet
O-B(F) B tank	0 0.0%
Dom UVG	1475 10.0%
O-B(DLG)	0 0.0%
O-B(AG)	0 0.0%
O-B(FG)	0 0.0%
Ecq(F)	0 0.0%
Ecq(A)	2955 20.0%
Ecq(G)	0 0.0%
Ecq(G) SMI	2955 20.0%

Lbs/Batch (raw mat.+eco. cullet)
Lbs/T.G.(raw mat.+eco. cullet)

0.000	0.000
0.354	0.283
0.000	0.000
0.000	0.000
0.000	0.000
0.000	0.000
1.803	1.442
0.000	0.000
1.359	1.087
20.44	16.35
3.07	2.46

Lbs/Batch (raw mat.+tot. cullet)
Lbs/T.G.(raw mat.+tot. cullet)

20.79	16.63
2.82	2.25

Xs SO3(Lbs/ton) 2.34 (@ 0.024% SO3 retained)

Xs SO2(Lbs/ton) 1.87

Furnace Pull (T/D) 205

Particulate (lbs/T) 0.52 12/4/2001

Estimated SO2 (lbs/hr) 14.0

(lbs/T) 1.63

Measured SO2 (lbs/hr)

(lbs/T) 0.00

Estimated SO2 (lbs/day) 335.1

RAW MATERIAL DATA

Material	Total S as %SO3
Flint sand-10/18/99	0.015
Byron Sand 4/28/05	0.010
Santa Cruz-11/02/01	0.012
Soda Ash-10/18/99	0.010
SMI Lime-09/23/04	0.010
Salt Cake-11/02/01	56.85
Iron Pyrite-10/18/99	124.85
EP Dust-5/10/05	52.100
Tube Scale 2/2/2007	0.405

Cullet		
O-B(F) B tank	11/10/09	0.103
Dom UVG	11/24-25-09	0.024
O-B(DLG)	08/08/09	0.022
O-B(AG)	11/10/09	0.033
O-B(FG)	04/05/06	0.020
Ecq(F)	07/15/08	0.155
Ecq(A)	07/15/08	0.061
Ecq(G)	—	0.000
Ecq(G) SMI	10/29/09	0.046

TRACY DEAD LEAF SULFUR INPUT CALCULATIONS US Weights (tons/Lbs)

PLANT: Tracy FURNACE: A Batch No.: 09.22A.DL53

Glass Made/Batch 8.5895 Tons

Materials Used	Lbs/Batch
Flint sand-10/18/99	1510.0
Byron Sand 4/28/05	5025.0
Santa Cruz-11/02/01	0.0
Soda Ash-10/18/99	1785.0
SMI Lime-09/23/04	1779.0
Salt Cake-11/02/01	22.1
Iron Pyrite-10/18/99	0.0
EP Dust-5/10/05	0.0
Tube Scale	0.0
Carbocite	6.00

Lbs/Batch (no cullet)
Lbs/T.G.(no cullet)

Total sulfur (lbs)	
as SO3	as SO2
0.227	0.181
0.503	0.402
0.000	0.000
0.179	0.143
0.178	0.142
12.343	9.874
0.000	0.000
0.000	0.000
0.000	0.000
13.43	10.74
3.13	2.50

Cullet	Percent Cullet	
O-B(F) B tank	0	0.0%
O-B(A)	0	0.0%
O-B(DLG)	2575	15.0%
O-B(AG)	860	5.0%
O-B(FG)	0	0.0%
Ecq(F)	1720	10.0%
Ecq(A)	3435	20.0%
Ecq(G) Lav.	0	0.0%
Ecq(G) SMI	0	0.0%

Lbs/Batch (raw mat.+eco. cullet)
Lbs/T.G.(raw mat.+eco. cullet)

0.000	0.000
0.000	0.000
0.541	0.433
0.327	0.261
0.000	0.000
2.666	2.133
2.095	1.676
0.000	0.000
0.000	0.000
18.19	14.55
2.65	2.12

Lbs/Batch (raw mat.+tot. cullet)
Lbs/T.G.(raw mat.+tot. cullet)

19.06	15.25
2.22	1.77

Xs SO3(Lbs/ton) 1.80 (@ 0.021% SO3 retained)

RAW MATERIAL DATA

Xs SO2(Lbs/ton) 1.44

Furnace Pull (T/D) 205
Particulate (lbs/T) 0.52 12/4/2001

Estimated SO2
(lbs/hr) 10.3
(lbs/T) 1.20

Measured SO2
(lbs/hr)
(lbs/T) 0.00

Estimated SO2
(lbs/day) 247.0

Material	Total S as %SO3
Flint sand-10/18/99	0.015
Byron Sand 4/28/05	0.010
Santa Cruz-11/02/01	0.012
Soda Ash-10/18/99	0.010
SMI Lime-09/23/04	0.010
Salt Cake-11/02/01	55.85
Iron Pyrite-10/18/99	124.85
EP Dust-5/10/05	52.100
Tube Scale 2/2/2007	0.405

Cullet		
O-B(F) B tank	05/08/09	0.097
O-B(A)	05/08/09	0.063
O-B(DLG)	01/22/09	0.021
O-B(AG)	05/08/09	0.038
O-B(FG)	04/05/06	0.020
Ecq(F)	07/15/08	0.155
Ecq(A)	07/15/08	0.061
Ecq(G) Lav.	10/01/02	0.209
Ecq(G) SMI	08/01/06	0.045

TRACY ANTIQUE GREEN SULFUR INPUT CALCULATIONS

US Weights (tons/Lbs)

PLANT: Tracy FURNACE: A Batch No.: 09.22A.AG74

Glass Made/Batch 6.9975 Tons

Materials Used	Lbs/Batch
Flint sand-10/18/99	0.00
Byron Sand 4/28/05	5900.0
Santa Cruz-11/02/01	0.0
Soda Ash-10/18/99	1440.0
SMI Lime-09/23/04	1589.0
Salt Cake-11/02/01	36.1
Iron Pyrite-10/18/99	0.0
EP Dust-5/10/05	0.0
Tube Scale	13.10
Carbon	10.90

Lbs/Batch (no cullet)
Lbs/T.G.(no cullet)

Total sulfur (lbs)	
as SO3	as SO2
0.000	0.000
0.590	0.472
0.000	0.000
0.144	0.115
0.159	0.127
20.162	16.129
0.000	0.000
0.000	0.000
0.053	0.042
21.11	16.89
5.49	4.39

Cullet	Percent Cullet
O-B(F) B tank	0.0%
O-B(A)	0.0%
O-B(DLG)	0.0%
O-B(AG)	10.0%
O-B(FG)	0.0%
Ecq(F)	0.0%
Ecq(A)	25.0%
Ecq(G)	0.0%
Ecq(G) SMI	10.0%

Lbs/Batch (raw mat.+eco. cullet)
Lbs/T.G.(raw mat.+eco. cullet)

0.000	0.000
0.000	0.000
0.000	0.000
0.532	0.426
0.000	0.000
0.000	0.000
2.135	1.708
0.000	0.000
0.630	0.504
23.87	19.10
3.79	3.03

Lbs/Batch (raw mat.+tot. cullet)
Lbs/T.G.(raw mat.+tot. cullet)

24.40	19.52
3.49	2.79

Xs SO3(Lbs/ton) 2.73 (@ 0.038% SO3 retained)

RAW MATERIAL DATA

Xs SO2(Lbs/ton) 2.18

Material

Furnace Pull (T/D) 205
Particulate (lbs/T) 0.52 12/4/2001

Flint sand-10/18/99	0.015
Byron Sand 4/28/05	0.010
Santa Cruz-11/02/01	0.012
Soda Ash-10/18/99	0.010
SMI Lime-09/23/04	0.010
Salt Cake-11/02/01	55.85
Iron Pyrite-10/18/99	124.85
EP Dust-5/10/05	52.100
Tube Scale 2/2/2007	0.405

Total S	as %SO3
0.015	
0.010	
0.012	
0.010	
0.010	
55.85	
124.85	
52.100	
0.405	

Estimated SO2 (lbs/hr) 16.6
(lbs/T) 1.95

Measured SO2 (lbs/hr)
(lbs/T) 0.00

Estimated SO2 (lbs/day) 399.4

Cullet

O-B(F) B tank	05/08/09	0.097
O-B(A)	05/08/09	0.063
O-B(DLG)	06/08/09	0.022
O-B(AG)	05/08/09	0.038
O-B(FG)	04/05/06	0.020
Ecq(F)	07/15/08	0.155
Ecq(A)	07/15/08	0.061
Ecq(G)	10/01/02	0.000
Ecq(G) SMI	09/03/02	0.045

TRACY FRENCH GREEN SULFUR INPUT CALCULATIONS
US Weights (tons/Lbs)

PLANT: Tracy FURNACE: A DATE: 06.22A.FG27

Glass Made/Batch 7.8896 Tons

Materials Used	Lbs/Batch
Flint sand-10/18/99	1266.00
Byron Sand 4/28/05	4135.0
Santa Cruz-11/02/01	0.0
Soda Ash-10/18/99	1464.0
SMI Lime-09/23/04	1465.0
Salt Cake-11/02/01	20.7
Iron Pyrite-10/18/99	0.0
EP Dust-5/10/05	0.0
Tube Scale - 3/31/05	0.0
Carbon	3.8000

Lbs/Batch (no cullet)
Lbs/T.G.(no cullet)

Total sulfur (lbs)	
as SO3	as SO2
0.190	0.152
0.414	0.331
0.000	0.000
0.148	0.117
0.147	0.117
11.551	9.249
0.000	0.000
0.000	0.000
0.000	0.000
12.46	9.97
3.51	2.81

Cullet	Percent Cullet
O-B(F) B tank	0
O-B(A)	0
O-B(DLG)	3950
O-B(AG)	0
O-B(FG)	0
Ecq(F)	790
Ecq(A)	3950
Ecq(G) Lav.	0
Ecq(G) SMI	0

Lbs/Batch (raw mat.+eco. cullet)
Lbs/T.G.(raw mat.+eco. cullet)

0.000	0.000
0.000	0.000
0.830	0.664
0.000	0.000
0.000	0.000
1.272	1.018
2.568	2.054
0.000	0.000
0.000	0.000
16.30	13.04
2.76	2.20

Lbs/Batch (raw mat.+tot. cullet)
Lbs/T.G.(raw mat.+tot. cullet)

17.13	13.70
2.17	1.74

Xs SO3(Lbs/ton) 1.75 (@ 0.021% SO3 retained)

Xs SO2(Lbs/ton) 1.40

Furnace Pull (T/D) 265

Particulate (lbs/T) 0.52 12/4/2001

Estimated SO2 (lbs/hr) 10.0

(lbs/T) 1.17

Measured SO2 (lbs/hr)

(lbs/T) 0.00

Estimated SO2 (lbs/day) 239.1

RAW MATERIAL DATA

Material	Total S as %SO3
Flint sand-10/18/99	0.015
Byron Sand 4/28/05	0.010
Santa Cruz-11/02/01	0.012
Soda Ash-10/18/99	0.010
SMI Lime-09/23/04	0.010
Salt Cake-11/02/01	55.85
Iron Pyrite-10/18/99	124.85
EP Dust-5/10/05	52.100
Tube Scale - 3/31/05	0.260

Cullet		Total S as %SO3
O-B(F) B tank	11/09/05	0.104
O-B(A)	02/06/06	0.068
O-B(DLG)	11/09/05	0.021
O-B(AG)	02/08/06	0.032
O-B(FG)	06/02/04	0.021
Ecq(F)	10/05/05	0.161
Ecq(A)	10/18/05	0.065
Ecq(G) Lav.	10/01/02	0.209
Ecq(G) SMI	09/03/02	0.045

Furnace Emission Test

PLANT	FURN	MA FT2	PORT S/I	PORT No.	TEAM	DATE	DATA
Tracy	22B		S	6			
LOAD_TPD	COLOR	FUEL	VOL_SDCFM	TRANS		OPACITY	
281.0	F	G	11,577				
FUEL_MCFH	FUEL_GPH		O2 %	PART_PP	PART_PPH	PART_GRS	
53.7	0		7	0.52	6.06	0.061	
BWOT_F	BOOST_KV		H2O %	NOX_PPT	NOX_PPH	NOX_PPM	
2739	550		13.6	3.82	44.7	694	
PORT_O2 %	CULLET %		TEMP (deg.F)	SO2_PP1	SO2_PPH	SO2_PPM	
	32.9		644	1.28	15	168.3	

MEMO

The condensable fraction of the PM catch captured in the IPA catch was 1.04 PPH.
 Hydrocarbons (>C1) = 3.68ppm, CO= 21.1 ppm. Total sulfates = 3.18 PPH.

Furnace Emission Test

PLANT	FURN	MA FT2	PORT S/I	PORT No.	TEAM	DATE	DATA
Tracy	22C		S	7			
LOAD_TPD	COLOR	FUEL	VOL_SDCFM	TRANS	OPACITY		
346.0	A	G	11.268				
FUEL_MCFH	FUEL_GPH	O2 %		PART_PP*	PART_PPH	PART_GRS	
48.2	0	6.26		0.58	8.4	0.087	
BWOT_F	BOOST_KV	H2O %		NOX_PPT	NOX_PPH	NOX_PPM	
		13.79		2.42	34.85	527.7	
PORT_O2 %	CULLET_%	TEMP (deg.F)		SO2_PP1	SO2_PPH	SO2_PPM	
	45.0	633.5		2.83	37.96	412.7	

MEMO

The condensable fraction of the PM catch captured in the IPA catch was .39 PPH. Hydrocarbons (>C1) = 2.57 ppm, CO = 6.8 ppm. Total sulfates = 5.53 PPH.

Looking back at the PEMS records for this time period ranged between ~ 1.20-1.45 PPT. At 1247 hrs. the NOx indicated 1.46 PPT. Using the avg operating conditions and the factors established on 12/14/00 with 35 data sets, the predicted was 2.30 PPT. When I hand calculated the predicted NOx using the latest factors at the time of the 10/26/00 tests I got 2.24 PPT (so do not know why the reported was low). The additions of 13 additional data sets and two additional parameters (TPD and cullet) appears to have improved the PEMS predicting. Earlier tests on 9/19/00 showed good agreement between the RM and the PEMS.

APPENDIX IV

Rule 4354 Monitoring Proposal for VOC and PM₁₀

San Joaquin Valley Unified Air Pollution Control District

Alternate Monitoring Proposal for Rule 4354

Monitoring VOC with Furnace Temperature and Monitoring PM10 with Electrostatic Precipitator Specific Power

Facility Name: Owens Brockway Glass Container

Contact Person: Daniel Armagost

Contact Telephone: (209) 836-8296

Application #'s: N-593-10-13, '-12-11, '-13-9

Project #: N-1097251

1. Background:

Section 5.9.2.2 requires that the operator of a unit subject to a Table 2 VOC limit monitor VOC with a CEMS. Section 5.9.2.3 states that in lieu of a CEMS, key operating parameters that are indicative of compliance with the applicable Table 2 limit may be monitored and recorded.

Section 5.9.4 states that PM10 emission monitoring requirements shall be in effect on or after January 1, 2011.

Prior to implementing alternative monitoring procedures, prior District approval is required.

2. PROPOSAL:

VOC:

The facility has proposed to periodically monitor furnace temperature to show compliance with the Table 2 VOC limit. The Table 2 VOC limit and the permit limits are 20 ppmvd @ 8% O₂. The units were last source tested on June 10 and 11 of 2008 and the VOC emissions were shown to be 1.5 ppmvd @ 8% O₂. The facility operator reported that the furnace temperature was approximately 2400 degrees F during the source test.

Each batch of glass manufactured by the facility includes about the same ingredients in about the same proportions and is heated to the same temperature. Since high temperatures effectively control VOC emissions, it is logical to assume that as long as the furnace is maintained at a high temperature, compliance with the applicable VOC standard will be met. Therefore, the facility's request for the District to deem furnace temperature a key operating parameter is granted.

PM10:

The facility has proposed to monitor the electrostatic precipitator secondary current and secondary voltage to compute an average daily total power input, to show compliance with the PM10 emission limit of District Rule 4354.

Proper operation of the electrostatic precipitator will ensure compliance with the PM10 emission limit of District Rule 4354. To ensure proper operation of the electrostatic precipitator, the facility has proposed to monitor the secondary current and secondary voltage of each electrostatic precipitator. Using the average daily secondary voltage and secondary current, it is possible to determine the average daily power input into each electrostatic precipitator. The average daily power input is significant, as the power input is related to the electrostatic precipitator PM10 control efficiency. The facility's request to deem total power input, secondary voltage, and secondary current as key operating parameters is granted.

3. Temperature Requirement:

The facility has proposed that the District accept compliance with the VOC limit is being met provided the furnace temperature is shown to be at least 1600 degrees F. However, section 5.9.3.2.4 requires that the temperature be shown by source testing to be sufficient to ensure compliance. The applicant will establish the minimum temperature required to maintain compliance with the VOC limit of this permit. This temperature requirement may be raised or lowered to the level shown by the most recent source test to result in compliance with the VOC emission standard.

4. Temperature Monitoring Frequency:

The facility has proposed to monitor the furnace temperature daily. This frequency is sufficient.

5. Total Power Input Requirement

The facility will determine the minimum total power input necessary to show compliance with the PM10 limit during the initial source test of each glass furnace.

6. Total Power Input Monitoring Frequency

The facility has proposed to monitor the electrostatic precipitator secondary voltage and current continuously, and use the continuously monitored data to compute a daily average total power input. This frequency is sufficient.

7. Recommended Permit Conditions:

VOC:

1. The permittee shall monitor and record the furnace temperature daily. [District Rule 4354]
2. The initial minimum temperature to show compliance with the VOC emission limit of this permit shall be established during the initial source test. [District Rule 4354]
3. The furnace temperature shall be maintained at or above the level for which compliance with the permitted VOC limit was demonstrated during the most recent source test. [District Rule 4354]
4. The furnace temperature shall be maintained at or above the level for which compliance with the permitted VOC limit was demonstrated during the most recent source test. If the measured furnace temperature is less than the minimum furnace temperature limit, the permittee shall conduct a certified VOC source test within 60 days to re-establish the minimum temperature limit. In lieu of conducting a certified VOC source test, the permittee may stipulate that a violation has occurred, subject to enforcement action. The permittee must then correct the violation (return the furnace temperature to or above the minimum temperature limit), show compliance has been re-established, and resume monitoring procedures. If the deviation is a result of a qualifying breakdown condition pursuant to District Rule 1100, the permittee may fully comply with Rule 1100 in lieu of performing the notification and testing required by this condition. [District Rule 4354]

PM10:

1. The permittee shall install, operate, and maintain a continuous monitoring and recording system to accurately measure and record the electrostatic precipitator secondary current and secondary voltage. [District Rule 4354]
2. The average daily total power input into the electrostatic precipitator shall be calculated by multiplying the average daily secondary amperage by the average daily secondary voltage, both recorded by the continuous monitoring system. [District Rule 4354]
3. The minimum average daily total power input into the electrostatic precipitator that shows compliance with the PM10 emission limit of this permit shall be established during the initial source test. [District Rule 4354]
4. The average daily total power input of the electrostatic precipitator shall be maintained at or above the level for which compliance with the permitted PM10 limit was demonstrated during the most recent source test. If the minimum measured average daily total power input into the electrostatic precipitator is exceeded, the permittee shall conduct a certified PM10 source test within 60 days to re-establish the minimum average daily total power input limit. In lieu of conducting a certified PM10 source test, the permittee may stipulate that a violation has occurred, subject to enforcement action. The permittee must then correct the violation (return the average daily total power input to or above the minimum level), show compliance has been re-established, and resume monitoring procedures. If the deviation is a result of a qualifying breakdown condition pursuant to District Rule 1100, the permittee may fully comply with Rule 1100 in lieu of performing the notification and testing required by this condition. [District Rule 4354]
5. The permittee shall keep records of the date of the measured electrostatic precipitator average daily total power input and the minimum electrostatic precipitator daily total power input established during the most recent source test that showed compliance with the PM10 emission limit of this permit. [District Rule 4354]

APPENDIX V
Risk Management Review

REVISED
San Joaquin Valley Air Pollution Control District
Risk Management Review

To: James Harader, AQE – Permit Services
 From: Ester Davila, SAQS – Technical Services
 Date: April 26, 2010
 Facility Name: Owens Brockway
 Location: 14700 W. Schulte Road
 Tracy, CA 95377
 Application #(s): N-593-10-13, 12-11, 13-9, 49-0
 Project #: N-1092751

A. RMR SUMMARY

RMR Summary						
Categories	Glass Furnace (10-13)	Glass Furnace (12-11)	Glass Furnace (13-9)	Receiving Silo (42-0)	Project Totals	Facility Totals
Prioritization Score	0.33	0.19	0.28	0.0	0.80	>1
Acute Hazard Index	0.005	0.003	0.147	0.00	0.155	0.155
Chronic Hazard Index	0.01	0.01	0.01	0.0	0.05	0.05
Maximum Individual Cancer Risk (10 ⁻⁶)	1.08	0.65	6.83	0.0	8.56	8.56
T-BACT Required?	Yes	No	Yes	No		
Special Permit Conditions?	Yes	Yes	Yes	No		

Proposed Permit Conditions

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

Units # 10-13, 12-11, 13-9:

- {1898} The exhaust stack shall vent vertically upward. The vertical exhaust flow shall not be impeded by a rain cap, roof overhang, or any other obstruction. [District Rule 4102] N
- The facility shall not use commercial arsenic as a raw material in the production process. [40 CFR 61 Subpart N] Y

T-BACT is required for these units because of emissions of hexavalent chromium, which is PM10. In accordance with District policy, BACT for this unit will be considered to be T-BACT.

Unit # 42-0

No special conditions are required.

B. RMR REPORT

I. Project Description

Technical Services received a request on March 15, 2010, to perform a Risk Management Review for a proposed installation of a Trona receiving silo (42-0) and the proposed modifications to three glass furnaces (10-13, 12-11, and 13-9). Modifications consist of installing a new SOx scrubber and electrostatic precipitator (ESP) on each furnace. While there will be no emission increases from the furnaces, the stack parameters will change. Also, each of the new electrostatic precipitators will be equipped with two dust silos with bin vents.

II. Analysis

Toxic emissions for these proposed units were calculated using Ventura County's emission factors for natural gas fired internal combustion sources and glass furnace emission factors developed from the facility's District-approved TEIR and a hexavalent chromium source test conducted in March of 2009. A control efficiency of 99% or 20% (ESP) was applied to all the trace metals as per documentation provided by the applicant (EER Article publish 1996). In accordance with the District's *Risk Management Policy for Permitting New and Modified Sources* (APR 1905, March 2, 2001), risks from the proposed units' toxic emissions were prioritized using the procedure in the 1990 CAPCOA Facility Prioritization Guidelines and incorporated in the District's HEARTs database. The prioritization score for this proposed unit was less than 1.0 (see RMR Summary Table), however the facility total prioritization score was greater than one. Therefore, further analysis was necessary. The AERMOD model was used, with the parameters outlined below and the concatenated meteorological data for 2004-2008 from Tracy to determine the dispersion factors (i.e., the predicted concentration or X divided by the normalized source strength or Q) for a receptor grid. These dispersion factors were input into the Hot Spots Analysis and Reporting Program (HARP) risk assessment module to calculate the chronic and acute hazard indices and the carcinogenic risk for the project.

The following parameters were used for the review:

Analysis Parameters Unit 10-13			
Stack Height (m)	41	Stack Gas Exist Vel (m/s)	12.94
Stack Inside Diameter (m)	1.4	Stack Gas Exit Temp. (°K)	664
Usage (MMscf/yr)	526	Throughput (Tons/year)	146,000

Analysis Parameters Unit 12-11			
Stack Height (m)	41	Stack Gas Exist Vel (m/s)	7.54
Stack Inside Diameter (m)	1.4	Stack Gas Exit Temp. (°K)	664
Usage (MMscf/yr)	254	Throughput (Tons/year)	87,235

Analysis Parameters Unit 13-9			
Stack Height (m)	41	Stack Gas Exist Vel (m/s)	13.94
Stack Inside Diameter (m)	1.4	Stack Gas Exit Temp. (°K)	614
Usage (MMscf/yr)	587	Throughput (Tons/year)	124,100
(Area) Release Height (m)	15	Length of Side (m)	3
Analysis Parameters Unit 42-0			
Throughput (Tons/yr)	1765	PM₁₀ emissions (lb/yr)	0.6
(Area) Release Height (m)	20	Length of Side (m)	3
Closest Receptor (m)	2000 (all units)	Max Hours per Year	8760 (all units)

III. Conclusion

The acute and chronic hazard indices are less than 1.0 and the cancer risk associated with the project is greater than one in a million but less than 10 in a million. **In accordance with the District's Risk Management Policy, the project is approved with Toxic Best Available Control Technology (T-BACT).**

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. Toxic emissions summary
- D. Prioritization score
- E. HARP Reports
- F. Facility Summary

APPENDIX VI
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-593-10-14

Pollutant	PE2 (lb/year)	PE1 (lb/year)	QNEC (lb/qtr)
NOx	584,000	584,000	0
SOx	131,400	196,666 ¹⁶	-65,266
PM10	57,706	57,706	0
CO	161,680	161,680	0
VOC	6,160	6,160	0

N-593-12-11:

Pollutant	PE2 (lb/year)	PE1 (lb/year)	QNEC (lb/qtr)
NOx	348,940	348,940	0
SOx	78,512	196,666 ¹⁶	-118,151
PM10	33,140	33,140	0
CO	78,140	78,140	0
VOC	2,980	2,980	0

N-593-13-10

Pollutant	PE2 (lb/year)	PE1 (lb/year)	QNEC (lb/qtr)
NOx	496,400	496,400	0
SOx	111,690	196,667 ¹⁶	-84,976
PM10	47,160	47,160	0
CO	124,100	124,100	0
VOC	6,860	6,860	0

N-593-42-1

Pollutant	PE2 (lb/year)	PE1 (lb/year)	QNEC (lb/qtr)
NOx	0	0	0
SOx	0	0	0
PM10	0	0	0
CO	0	0	0
VOC	0	0	0

¹⁶ SOx emissions from the three furnaces were previously limited by an SLC of 590,000 lb/year. The 590,000 lb/year will be distributed evenly among the three furnaces as PE1.

APPENDIX VII

Electrostatic Precipitator Article

EER

Emissions

North America's Leading Provider of Emissions and Combustion Efficiency Testing Services

Energy and Environmental Research Corporation

Winter/Spring 1996

EER and Rolls-Royce Form Strategic Alliance!

At the 1995 PowerGen Americas Conference in Anaheim, California, EER and Rolls-Royce's International Combustion announced a new strategic alliance to offer advanced Low NOx control technologies in the U.S. and worldwide. The integration of International Combustion's advanced Low NOx burner technology with EER's Reburning technology offers an improved and more cost-effective deep NOx reduction capability. International Combustion is a major supplier of Low NOx burner technology to power

stations worldwide. EER develops and supplies integrated NOx control systems which are designed to couple Reburning with Low NOx burners and other NOx control technologies. According to Peter Beal, Business Development Manager-Combustion Systems for International Combustion, "This new alliance capitalizes on the strengths of both organizations to create a powerful new force in the NOx compliance market." International Combustion has more than 40 Low NOx retrofits installed or on order in the U.S.

Rolls-Royce is one of the world's leading power systems companies, operating through its industrial and aerospace power groups. The Industrial Power Group provides equipment for power generation, transmission and distribution, oil and gas, marine propulsion, and materials handling. The Aerospace Group, which includes the Allison Engine Company, has one of the largest fleets of engines in the world, powering aircraft for both commercial and military applications. Call Roy Payne or Blair Folsom at (714) 859-8851 for further information.

EER Receives First Commercial Reburning NOx Control Contract

After three successful demonstrations of EER's Reburning NOx control technology under the U.S. Department of Energy's Clean Coal Technology program, completed last year, EER has received its first commercial Reburn order. EER's Reburning technology will help facilities meet stringent NOx regulations in the Northeastern U.S. required to satisfy federal Clean Air Act Title I requirements.

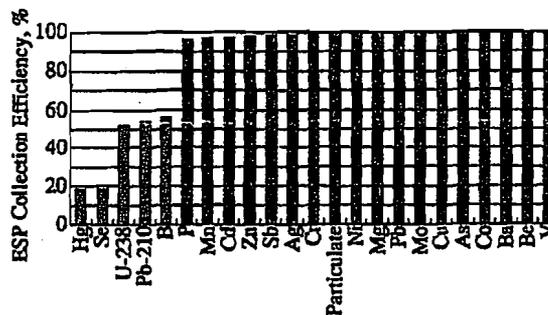
New York State Electric and Gas Corporation (NYSEG) selected EER to provide design, detailed engineering and components for Reburning on a 105 megawatt coal-fired boiler at the Greenidge plant. The system will use natural gas as the Reburning fuel. The basic Reburning system also will be designed to demonstrate EER's Advanced Gas Reburning NOx control technology, which integrates selective non-catalytic NOx reduction (SNCR) to achieve very high levels of NOx reduction. Final negotiations on the Advanced Gas Reburning demonstration are in-progress. Both the basic and advanced systems will be installed in 1996.

EER's Reburning technology also extends to other fuels for maximum flexibility. In 1995, EER and Fuller Power Corporation's MicroFuel Division formed a strategic alliance, offering Micronized Coal Reburning with Fuller's Micromill® pulverizers. EER also offers Reburning using other fuels such as fuel oil and Orimulsion®. Call Blair Folsom at (714) 859-8851 for further information.

Electrostatic Precipitator Efficiently Captures Most Toxic Trace Metals

In tests recently completed on a 615 megawatt coal-fired utility boiler, EER measured emissions of more than 200 hazardous air pollutants including trace metals. EER collected samples from three flue gas locations (stack and inlets to two electrostatic precipita-

coal-fired boilers. Mercury emission measurements are particularly challenging because of low concentrations in the flue gas - about 1 part per billion - and because measurement methods are still not completely developed or validated for coal-fired boilers. High sulfur dioxide concentration and particulate loadings (compared to waste incinerators, for which the existing methods were developed) require considerable modification of the EPA Method 29 multi-



Results from 615 MW utility boiler show high electrostatic precipitator collection efficiencies for most trace metals.

tors) and from all solid and liquid streams entering and leaving the system to enable a comprehensive assessment of toxic emissions, their sources, and their fate.

The electrostatic precipitator was very effective for capturing most trace elements leaving the boiler. Except for mercury, selenium, boron and radionuclides, trace metals collection efficiency of the precipitator was greater than 90 percent. Mercury, which is mostly in the vapor form at precipitator temperatures, had the lowest collection efficiency. These results are remarkably consistent with data from other

metals sampling train to minimize interferences and bias. EER also evaluated the use of iodated carbon traps with neutron activation analysis for mercury measurement, with good results.

These tests were performed under contract to the U.S. Department of Energy as part of a cooperative program with the Electric Power Research Institute, Utility Air Regulatory Group, and U. S. Environmental Protection Agency. Additional tests are planned on a second boiler in 1996. Call Glenn England at (714) 859-8851 for further information.