IN THE UNITED STATES DISTRICT COURT
FOR THE WESTERN DISTRICT OF WASHINGTON
AT SEATTLE

UNITED STATES OF AMERICA, Plaintiff, and COMMONWEALTH OF MASSACHUSETTS, ET AL. Plaintiff-Intervenors, v. SAINT-GOBAIN CONTAINERS, INC. Defendant.	))))))))	Civil Action No 2:10-cv-00121-TSZ CONSENT DECREE BETWEEN PLAINTIFF UNITED STATES OF AMERICA AND DEFENDANT SAINT-GOBAIN CONTAINERS, INC.

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WHEREAS, Plaintiff United States of America, on behalf of the United States Environmental Protection Agency (EPA) and Plaintiff-Intervenors, Commonwealth of Massachusetts; Commonwealth of Pennsylvania, Department of Environmental Protection; State of North Carolina; State of Illinois; State of Indiana and its Department of Environmental Management; State of Wisconsin; Oklahoma Department of Environmental Quality; the State of Louisiana, on behalf of the Louisiana Department of Environmental Quality; State of Missouri, Department of Natural Resources; Washington State Department of Ecology; Puget Sound Clean Air Agency, and San Joaquin Valley Unified Air Pollution Control District have filed Complaints concurrently with this Consent Decree, alleging that Saint-Gobain Containers, Inc. (SGCI), violated and/or continues to violate Section 165, 42 U.S.C. § 7475, of the Clean Air Act (CAA or Act), 42 U.S.C. § 7401 et seq., with respect to emissions of nitrogen oxides, sulfur dioxide, and particulate matter;

WHEREAS, the Complaints against SGCI sought injunctive relief and the assessment of civil penalties for alleged violations of the Prevention of Significant Deterioration (PSD) and Nonattainment New Source Review (NNSR) provisions in Part C and D of Subchapter I of the Act, 42 U.S.C. §§ 7470-7492, 7501-7515, and federally-enforceable state implementation plans developed by Massachusetts,

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1 New Jersey, Pennsylvania, North Carolina, Illinois, Indiana, Wisconsin, Texas,
2 Oklahoma, Louisiana, Missouri, Washington and California;
3 WHEREAS, Commonwealth of Massachusetts; Commonwealth of
4 Pennsylvania, Department of Environmental Protection; State of North Carolina;
5 State of Illinois; State of Indiana and its Department of Environmental
6 Management; State of Wisconsin; Oklahoma Department of Environmental
7 Quality; the State of Louisiana, on behalf of the Louisiana Department of
8 Environmental Quality; State of Missouri, Department of Natural Resources;
9 Washington State Department of Ecology; Puget Sound Clean Air Agency, and
10 San Joaquin Valley Unified Air Pollution Control District have joined in this
11 matter alleging violations of their respective applicable implementation provisions
12 and/or other state and/or local rules and regulations incorporating and
13 implementing the foregoing federal requirements;
14 WHEREAS, EPA issued a notice of violation (NOV) to SGCI with respect
15 to such allegations on January 13, 2009;
16 WHEREAS, EPA provided SGCI and Commonwealth of Massachusetts;
17 New Jersey Department of Environmental Protection; Commonwealth of
18 Pennsylvania, Department of Environmental Protection; State of North Carolina;
19 State of Illinois; State of Indiana and its Department of Environmental
20 Management; State of Wisconsin; Oklahoma Department of Environmental

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Quality; the State of Louisiana, on behalf of the Louisiana Department of Environmental Quality; Texas Commission on Environmental Quality; State of Missouri, Department of Natural Resources; Washington State Department of Ecology; Puget Sound Clean Air Agency, and San Joaquin Valley Unified Air Pollution Control District with actual notice of the alleged violations, in accordance with Section 113(a)(1) of the Act, 42 U.S.C. § 7413(a)(1);

WHEREAS, the Complaints against SGCI allege that it made major modifications to certain major emitting facilities, without complying with the Non-attainment New Source Review (NNSR) and/or PSD requirements of the Act, by failing to obtain required permits, install required control technology, meet emission limits, and comply with requirements for monitoring, record-keeping and reporting, as specified in the Act;

WHEREAS, the Complaints state claims upon which relief can be granted against SGCI under Sections 113, 165, and 167 of the Act, 42 U.S.C. §§ 7413, 7475, and 7477, and 28 U.S.C. § 1355;

WHEREAS, SGCI has denied and continues to deny the violations alleged in the Complaints and NOV, and maintains that it has been and remains in compliance with the Act and is not liable for civil penalties or injunctive relief, and states that it is agreeing to the obligations imposed by this Consent Decree solely to avoid the costs and uncertainties of litigation and to improve the environment;

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WHEREAS, EPA has selected glass manufacturing facilities (including container glass) as a national enforcement priority under the Clean Air Act's New Source Review Program;

WHEREAS, the United States and SGCI anticipate that this Consent Decree, including the installation and operation of pollution control technology and other measures adopted pursuant to this Consent Decree, will achieve significant reductions of emissions from the SGCI Facilities and thereby significantly improve air quality;

WHEREAS, all parties recognize that each Furnace is designed and Operated differently and may necessitate different limits for Sulfur Dioxide for each Furnace and each glass type;

WHEREAS, all parties recognize that glass Furnaces are Operated continuously for periods of five (5) to ten (10) years, and attempts to shut them down more frequently may result in significant problems including, but not limited to, damage to the refractory and safety concerns;

WHEREAS, SGCI has waived any applicable federal or state requirements of statutory notice of the alleged violations;

WHEREAS, the United States, Commonwealth of Massachusetts; Commonwealth of Pennsylvania, Department of Environmental Protection; State of North Carolina; State of Illinois; State of Indiana and its Department of

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Environmental Management; State of Wisconsin; Oklahoma Department of Environmental Quality; the State of Louisiana, on behalf of the Louisiana Department of Environmental Quality; State of Missouri, Department of Natural Resources; Washington State Department of Ecology; Puget Sound Clean Air Agency, and San Joaquin Valley Unified Air Pollution Control District, and SGCI, have agreed, and the Court by entering this Consent Decree finds, that this Consent Decree has been negotiated in good faith and at arm's length; that this settlement is fair, reasonable, and in the public interest, and consistent with the goals of the Act; and that entry of this Consent Decree without further litigation is the most appropriate means of resolving this matter;

NOW, THEREFORE, without any admission by SGCI, and without adjudication of the violations alleged in the Complaints or the NOV, it is hereby ORDERED, ADJUDGED, AND DECREED as follows:

I. JURISDICTION AND VENUE

1. This Court has jurisdiction over the subject matter of this action, pursuant to 28 U.S.C. §§ 1331, 1345, and 1355, and Section 113(b) of the Act, 42 U.S.C. § 7413(b), and over the Parties. Venue lies in this District pursuant to Section 113(b) of the Act, 42 U.S.C. § 7413(b), and 28 U.S.C. §§ 1391(b) and (c) and 1395(a), because some of the violations alleged in the Complaints are alleged to have occurred in, and SGCI conducts business in, this judicial district. SGCI

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consents to this Court's jurisdiction over this Consent Decree and any action to enforce this Consent Decree, and to venue in this judicial district. For purposes of this Consent Decree and any action to enforce this Consent Decree, SGCI consents to this Court's jurisdiction over SGCI. Solely for the purposes of this Consent Decree and the underlying Complaints, and for no other purpose, SGCI waives all objections and defenses that it may have to the Court's jurisdiction over this action, to the Court's jurisdiction over SGCI, and to venue in this District. SGCI shall not challenge the terms of this Consent Decree or this Court's jurisdiction to enter and enforce this Consent Decree. Except as expressly provided for herein, this Consent Decree shall not create any rights in or obligations of any party other than the Plaintiff, Plaintiff-Intervenors, and SGCI. Except as provided in Section XXIV (Public Comment) of this Consent Decree, the Parties consent to entry of this Consent Decree without further notice.

2. For purposes of this Consent Decree, SGCI agrees that the Complaints and the States' Complaints in Intervention state claims upon which relief may be granted pursuant to Sections 111 and 165 of the Act, 42 U.S.C. §§ 7411, 7475 and/or pursuant to state law.

3. Notice of the commencement of this action has been given to Massachusetts Department of Environmental Protection, New Jersey Department of Environmental Protection, Pennsylvania Department of Environmental Protection,

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North Carolina Department of Environment and Natural Resources, Illinois Environmental Protection Agency, State of Indiana and its Department of Environmental Management, Wisconsin Department of Natural Resources, Texas Commission on Environmental Quality, Oklahoma Department of Environmental Quality, Louisiana Department of Environmental Quality, Missouri Department of Natural Resources, California Air Resources Board, Washington State Department of Ecology, Puget Sound Clean Air Agency, San Joaquin Valley Unified Air Pollution Control District, and South Coast Air Quality Management District as required by Section 113(b) of the Act, 42 U.S.C. § 7413(b).

II. APPLICABILITY

4. The obligations of this Consent Decree apply to and are binding upon the Plaintiff, Plaintiff-Intervenors and upon SGCI and its officers, employees, agents, subsidiaries, successors, assigns, or other entities or persons otherwise bound by law.

5. SGCI shall be responsible for providing a copy of this Consent Decree to all vendors, suppliers, consultants, contractors, agents, and any other company or organization retained to perform any of the work required by this Consent Decree. Notwithstanding any retention of contractors, subcontractors, or agents to perform any work required under this Consent Decree, SGCI shall be responsible for ensuring that all work is performed in accordance with the requirements of this

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Consent Decree. For this reason, in any action to enforce this Consent Decree, SGCI shall not assert as a defense the failure of its officers, directors, employees, servants, agents, or contractors to take actions necessary to comply with this Consent Decree, unless SGCI establishes that such failure resulted from a Force Majeure event, as defined in Paragraph 62 of this Consent Decree.

III. DEFINITIONS

6. Terms used in this Consent Decree that are defined in the Act or in federal regulations promulgated pursuant to the Act shall have the meanings assigned to them in the Act or such regulations, unless otherwise provided in this Decree. Whenever the terms set forth below are used in this Consent Decree, the following definitions shall apply:

a. "24-hour Block Average" shall be calculated by averaging the twenty-four (24) one-hour relevant data outputs (concentration or pounds) for a given Day and using the daily glass production rates (tons) on that Operating Day where applicable.

b. "Affected State(s)" shall mean any local agency Plaintiff-Intervenor or State Plaintiff-Intervenor and its agencies and political subdivisions having jurisdiction over a Facility addressed in this Consent Decree.

c. "Abnormally Low Production Rate" shall mean a glass production rate at or below the production rate set forth in Paragraph 10.

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d. "Abnormally Low Production Rate Day" shall mean any Operating Day where production falls into the range of Abnormally Low Production Rate, for at least one continuous hour.

e. "Calendar Year" shall mean the period commencing on January 1 and ending on December 31 of the same year.

f. "CEMS" means Continuous Emission Monitoring System.

g. "CEMS Certification" means the certification of the CEMS required by 40 C.F.R. § 60.13, 40 C.F.R. Part 60 Appendix B (Performance Specification 2) and 40 C.F.R. Part 60 Appendix F (Quality Assurance Procedures).

h. "CEMS Certification Event" shall mean an event that triggers the requirement to complete a first or subsequent CEMS Certification. The first CEMS Certification shall not be required until the dates set forth in Table 8. Events that will trigger subsequent CEMS Certification include a Furnace Startup or a First Control Device Startup. SGCI shall commence such recertification no later than thirty (30) days after the Furnace Startup period concludes (but no later than seventy (70) Days after Furnace Startup commences) or First Control Device Startup period concludes. If a Furnace Startup and a First Control Device Startup happen at the same time, then the

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recertification shall not be conducted until the first Operating Day after the conclusion of the later startup event.

i. "Cloud Chamber Scrubber System" and "CCSS" shall mean a pollution control device that works by passing the Furnace exhaust gas stream through a chamber that contains a "scrubbing cloud" of high-density, charged water droplets. The droplets collect particles and sulfur oxides as they interact with the process gas stream. The droplets are then collected at the bottom of the system.

j. "Color Transition" shall mean the period of not more than seven Days from the time when a glass color of an oxidation state different from that previously melted in the Furnace, is introduced to the Furnace, to the time when saleable glass bottles are being produced in the new color.

k. "Complaints" shall mean the Complaints filed by the United States, and the Complaints filed by the Plaintiff-Intervenors in this action.

l. "COMS" shall mean a Continuous Opacity Monitoring System.

m. "Consent Decree" or "Decree" shall mean this Consent Decree and all appendices attached hereto, but in the event of any conflict between the text of this Consent Decree and any Appendix, the text of this Consent Decree shall control.

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n. "Continuous Operating Year" shall mean a Calendar Year during which, on every day of the year, at least one of the Furnaces connected to a control system is Operating.

o. "Control Device Startup" shall mean the period of time from commencement of operation of an SCR, Scrubber System, ESP, CCSS, or similar add-on control device until the operation of the device has been stabilized and the device has achieved normal operating conditions. Such period shall not exceed thirty (30) Days.

p. "Date of Entry" means the date this Consent Decree is approved or signed by the United States District Court Judge.

q. "Date of Lodging" means the date this Consent Decree is filed for lodging with the Clerk of the Court for the United States District Court for the Western District of Washington.

r. "Day" shall mean a calendar day unless expressly stated to be a working day or unless a State rule requires that CEMs data be reported on Standard time (with no change for Daylight Savings Time). In computing any period of time for determining reporting deadlines under this Consent Decree, where the last day would fall on a Saturday, Sunday, or federal or State holiday, in the State where the Facility is located, the period shall run until the close of business of the next working day.

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s. "EPA" or "the Agency" shall mean the United States Environmental Protection Agency and any of its successor departments or agencies.

t. "Emission Rate 30-day Rolling Average" shall be expressed as pounds of pollutant per ton of glass produced calculated at the Furnace in question in accordance with the following formula and Subparagraphs i. and ii below:

$$30-day\ average\ \frac{lb\ E}{ton} = \frac{COD_E\ (lbs) + P29D_E(lbs)}{COD_{Prod}\ (tons) + P29D_{Prod}(tons)}$$

Where: 30-day average (lb E/ton) = The Emission Rate 30-day Rolling Average

E = Emissions of the pollutant in question (NO_X or SO_2)

COD = Current Operating Day where the relevant Emission Rate 30-day Rolling Average is the applicable limit.

COD_E = The daily Emissions as measured by a CEMS on the COD, in pounds.

COD_{Prod} = Daily glass production on the COD, in tons of glass.

P29D = The Previous 29 Operating Days where the relevant Emission Rate 30-day Rolling Average is the applicable limit.

$P29D_E$ = The sum of the daily NO_X or SO_2 Emissions as measured by a CEMS during the P29D, in pounds.

$P29D_{Prod}$ = The sum of the daily glass production during the P29D, in tons of glass.

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i. A new Emission Rate 30-day Rolling Average shall be calculated for each new Operating Day where the Emission Rate 30-day Rolling Average is the applicable standard. Any Operating Day where the newly calculated Emission Rate 30-day Rolling Average exceeds the limit is a separate one Day violation; and

ii. As specified in this Consent Decree, some Operating Days will be excluded from the Emission Rate 30-day Rolling Average as set forth in Paragraphs 7-9 of this Consent Decree.

u. "Emissions Credit(s)" means an authorization or credit to emit a specified amount of the pollutants NO_X, SO_2, PM, PM_{10} and $PM_{2.5}$ that is allocated or issued under an emissions trading or marketable permit program of any kind established under the Act or a State Implementation Plan.

v. "Facility" or "Facilities" shall mean SGCI's plants further described below at Burlington, Wisconsin; Carteret, New Jersey; Dolton, Illinois; Dunkirk, Indiana; Henderson, North Carolina; Lincoln, Illinois; Madera, California; Milford, Massachusetts; Pevely, Missouri; Port Allegany, Pennsylvania; Ruston, Louisiana; Sapulpa, Oklahoma; Seattle, Washington;

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Waxahachie, Texas; and Wilson, North Carolina. Each of these plants may be referred to as a "Facility."

i. "Burlington" shall mean SGCI's Facility located at 815 S. McHenry St, Burlington, Wisconsin;

ii. "Carteret" shall mean SGCI's former Facility located at 50 Bryla St, Carteret, New Jersey;

iii. "Dolton" shall mean SGCI's Facility located at 13850 Cottage Grove Avenue, Dolton, Illinois;

iv. "Dunkirk" shall mean SGCI's Facility located at 524 E. Center Street, Dunkirk, Indiana;

v. "Henderson" shall mean SGCI's Facility located at 620 Facet Road, Henderson, North Carolina;

vi. "Lincoln" shall mean SGCI's Facility located at 1200 North Logan St., Lincoln, Illinois;

vii. "Madera" shall mean SGCI's Facility located at 24441 Avenue 12 & Road 24 1/2, Madera, California;

viii. "Milford" shall mean SGCI's Facility located at 1 National St., Milford, Massachusetts;

ix. "Pevely" shall mean SGCI's Facility located at 1500 Saint-Gobain Drive Hwy 61, Pevely, Missouri;

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x. "Port Allegany" shall mean SGCI's Facility located at 1 Glass Place, Port Allegany, Pennsylvania;

xi. "Ruston" shall mean SGCI's Facility located at 4241 Hwy 563, Ruston, Louisiana;

xii. "Sapulpa" shall mean SGCI's Facility located at 1000 N. Mission, Sapulpa, Oklahoma;

xiii. "Seattle" shall mean SGCI's Facility located at 5801 E. Marginal Way S., Seattle, Washington;

xiv. "Waxahachie" shall mean SGCI's Facility located at 2400 I.H. 35 E., Waxahachie, Texas; and

xv. "Wilson" shall mean SGCI's Facility located at 2200 Firestone Boulevard, Wilson, North Carolina.

w. "First Control Device Startup" shall only refer to the first startup of the relevant add-on control device (an SCR, Scrubber System, ESP, CCSS, or similar add-on control). First Control Device Startup shall represent the period of time from commencement of operation of the device until the operation of the device has been stabilized and the device has achieved normal operating conditions, but shall not exceed thirty (30) Days.

x. "Furnace" means for the purposes of NSPS only, a refractory vessel in which raw materials are charged, melted at high temperature, refined, and

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conditioned to produce molten glass which includes foundations, superstructure and retaining walls, raw material charger systems, heat exchangers, melter cooling system, exhaust system, refractory brick work, fuel supply and electrical boosting equipment, integral control systems and instrumentation, and appendages for conditioning and distributing molten glass to forming apparatuses. For all other purposes, "Furnace" means a unit comprised of a refractory-lined vessel in which raw materials are charged and melted at high temperature to produce molten glass.

y. "Furnace Startup" means the period of time while a Furnace's refractory is being heated up from ambient temperature and includes the Initial Heating Phase, Refractory Soak and Seal Phase, and Furnace Stabilization Phase.

i. "Initial Heating Phase" means the slow heating of the Furnace refractory using portable natural-gas burners placed in the openings in the Furnace. This phase typically lasts no longer than four (4) Days and ends when the main Furnace burners commence operation.

ii. "Refractory Soak and Seal Phase" means the phase of the Furnace Startup following the Initial Heating Phase when the Furnace is filled with molten glass, the temperature of

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the Furnace reaches operating conditions, and the refractory components reach thermal equilibrium. This phase typically lasts no longer than twenty-one (21) Days and ends when the joints between the refractory components are sealed and the Furnace is closed to the atmosphere.

iii. "Furnace Stabilization Phase" means the phase of Furnace Startup following the Refractory Soak and Seal Phase when the Furnace Operation is being stabilized. This phase will end no later than seventy (70) Days after the beginning of the Initial Heating Phase. However, notwithstanding the previous sentence, EPA or an Affected State may seek stipulated penalties if SGCI has unduly delayed completion of the Furnace Stabilization Phase. SGCI must track the status of the Startup as required in Exhibit A. Exhibit A includes conditions that may be used to indicate whether the Furnace Stabilization Phase should have been completed earlier than 70 days after the beginning of the Initial Heating Phase.

z. "Hot Spot Temperature" shall mean the highest temperature of the Furnace breastwall refractory. Breastwall refractory is the refractory

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sidewall between the tuck stone (about 18" above glass line) and the crown skew (where the Furnace crown meets the Furnace sidewall).

aa. "Inlet" shall be the emission concentration (in parts per million by volume dry) measured prior to the control device.

bb. "Installation of Controls" shall, solely for the purpose of Paragraph 29 of this Consent Decree, include:

i. The installation of an OEAS, SCR, Semi-dry Scrubber System, Dry Scrubber System, ESP, or CCSS;

ii. The installation of any alternative controls approved under Paragraph 103;

iii. The conversion of a Furnace to Oxyfuel; and

iv. The receipt of a limit for a Furnace listed in Table 4 in compliance with Paragraph 8.g., 9.f., 9.g., and 9.h.

cc. "Maintenance" shall mean activities necessary to keep the system or equipment working in its normal operating condition as set forth in Paragraph 13.

dd. "Major Rebuild" shall refer to the process of stopping glass production, stopping the flow of fuel, fully cooling down a Furnace, replacing some or all of the refractory in the Furnace, the crown and/or the regenerators (if applicable), and beginning a new campaign by starting up

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the Furnace again by firing fuel again and starting the production of glass. A Major Rebuild, for the purposes of this Consent Decree, does not include any refractory repairs conducted when the Furnace is still hot, emergency cold repairs, repairs solely required for restart of a Furnace which has temporarily ceased Operation due to economic reasons, or the planned minor cold repairs currently scheduled on the following Furnaces:

i. Waxahachie;

ii. Dolton Furnace #2;

iii. Henderson Furnace #1;

iv. Lincoln;

v. Madera Furnace #1; and

vi. Sapulpa Furnaces #50, #51, and #52.

ee. "Malfunction" shall mean, consistent with 40 C.F.R. § 60.2, any sudden, infrequent, and not reasonably preventable failure of air pollution control equipment, process equipment, or a process to operate in a normal or usual manner, but shall not include failures that are caused in part by poor Maintenance or careless operation.

ff. "Month" shall mean calendar month.

gg. "NO_X" shall mean the sum of oxides of nitrogen in the flue gas, collectively expressed as NO_2.

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hh. "NSPS" shall mean the standards of performance for new stationary sources codified at 40 C.F.R. Part 60. General NSPS requirements are codified at 40 C.F.R. Part 60, Subpart A. NSPS requirements specifically for glass manufacturing plants are codified at 40 C.F.R. Part 60, Subpart CC.

ii. "New Source Review" or "NSR" shall mean Prevention of Significant Deterioration (PSD) and Nonattainment New Source Review (NNSR) provisions in Part C and D of Subchapter I of the Act, 42 U.S.C. §§ 7470-7492, 7501-7515, and federally-enforceable state implementation plans.

jj. "Operate," "Operation," "Operating" and "Operated" shall mean when fuel is fired in the Furnace.

kk. "Operating Day" shall mean any Day where any fuel is fired into the Furnace. The Day starts at 12:00 am and ends at 11:59 pm.

ll. "Outlet" shall mean the emission concentration (in parts per million by volume dry) measured after a control device.

mm. "Outlet 30-day Rolling Average" is a term which applies only to SO_2 and shall be calculated by determining the Outlet 24-hour Block Average concentration from each Furnace (or combined stack, if applicable) during an Operating Day and previous twenty-nine (29) Operating Days when Outlet 30-day Rolling Average was the applicable standard. A new Outlet 30-day Rolling Average shall be calculated for each Operating Day. Any

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Operating Day where the newly calculated Outlet 30-day Rolling Average exceeds the limit is a separate one Day violation. As specified in this Consent Decree, the following Operating Days are exempt from this average: Control Device Startup, Malfunction of the control device (Scrubber System, CCSS, or ESP) and Maintenance on the control device (Scrubber System, CCSS, or ESP).

nn. "Oxyfuel Furnace" shall mean a Furnace in which the gas that provides the oxidant for combustion of the fuel is composed of greater than or equal to 90 percent oxygen.

oo. "Oxygen Enriched Air Staging" and "OEAS" shall mean the method of combustion air staging to control NO_X formation by reducing the amount of combustion air delivered to the firing ports, thereby decreasing the oxygen available in the flame's high temperature zone in the first combustion stage, and injecting oxygen-enriched air into the Furnace near the exit port(s) to complete combustion in the second stage within the Furnace.

pp. "Paragraph" shall mean a portion of this Consent Decree identified by an Arabic numeral.

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qq. "Particulate Matter" and "PM" shall mean any finely divided solid or liquid material, other than uncombined water, as measured by the reference methods specified below:

i. Filterable Particulate is the particulate measured using EPA Method 5 (40 C.F.R. Part 60 Appendix A).

ii. Total particulate is the combination of filterable plus condensable PM and is measured using Method 5 (40 C.F.R. Part 60 Appendix A) and EPA Method 202: (40 C.F.R. Part 51 Appendix M).

rr. "Parties" shall mean the United States, Commonwealth of Massachusetts, Commonwealth of Pennsylvania, State of North Carolina, State of Illinois, State of Indiana, State of Wisconsin, State of Washington, Oklahoma Department of Environmental Quality, State of Louisiana, State of Missouri, San Joaquin Valley Air Pollution Control District, Puget Sound Clean Air Agency and SGCI.

ss. "Permit" shall include any and all final authorizations necessary (1) to construct, modify, or Operate a Furnace; (2) to construct, install, and operate a control device or monitoring device issued pursuant to federal, state, or local law; or (3) to construct, install, and operate a control device or monitoring device required by this Consent Decree.

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tt. "Prevention of Significant Deterioration," and "PSD" shall mean the attainment area New Source Review program within the meaning of Part C of Subchapter I of the Act, 42 U.S.C. §§ 7470-7492.

uu. "Regenerative Furnace" shall mean a Furnace in which ambient air provides the primary oxidant for combustion of the fuel and the air is preheated using a system of regenerators to recover heat from the exhaust gas.

vv. "Removal Efficiency" for SO_2 means the percent reduction in concentration of that pollutant achieved by a Furnace's pollution control device. This percent reduction shall be calculated by subtracting the Outlet from the Inlet, dividing by the Inlet and then multiplying by 100.

ww. "Removal Efficiency 30-day Rolling Average" is a term which applies to SO_2 emissions and shall be calculated by summing the Removal Efficiency 24-hour Block Averages from each Furnace (or combined stack, if applicable) for each Operating Day and previous twenty-nine (29) Operating Days when Removal Efficiency 30-day Rolling Average was the applicable standard and then dividing by 30. A new Removal Efficiency 30-day Rolling Average shall be calculated for each new Operating Day. Any Operating Day where the newly calculated Removal Efficiency 30-day Rolling Average is less than the Removal Efficiency limit is a separate one-

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day violation. As specified in this Consent Decree, the following Operating Days are exempt from this average: Control Device Startup of the Scrubber System, CCSS, or ESP; Malfunction of the Scrubber System, CCSS, or ESP; and Maintenance on the Scrubber System, CCSS, or ESP.

xx. "Scrubber System" shall mean a type of system known sometimes as a sorbent injection system which involves the addition of an alkaline material into the gas stream to react with the acid gases. The acid gases react with the alkaline sorbents to form solid salts.

i. Semi-dry Scrubber System – The system described above with the sorbent in an aqueous phase which improves collection efficiency.

ii. Dry Scrubber System – The system described above with no moisture added in the reaction chamber or reaction area.

yy. "Section" shall mean a portion of this Consent Decree identified by a Roman numeral.

zz. "Selective Catalytic Reduction" and "SCR" means a pollution control device that reacts ammonia (NH_3) with the NO_X to form nitrogen (N_2) and water (H_2O) using a catalyst to speed the reaction.

aaa. "SGCI" shall mean Saint-Gobain Containers, Inc.

bbb. "SO_2" shall mean the pollutant sulfur dioxide.

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ccc. "State" or "States" shall mean those States or Commonwealths and local authorities that have jurisdiction over a Facility covered by this action.

ddd. "Supplemental Environmental Project" and "SEP" shall mean an environmentally beneficial project that SGCI agrees to undertake pursuant to this Consent Decree and SGCI is not otherwise legally required to perform.

eee. "System-wide Weighted Annual Average Actual Emissions" is a term applicable to SO_2 emissions, expressed in pounds of SO_2 per ton of glass produced (lbs/ton) and shall mean the total pounds of emissions of SO_2 as measured by the continuous emissions monitoring systems (CEMS) emitted in a Calendar Year from all Furnaces included in the average divided by the total actual annual tons of glass production for all Furnaces included in the average for that Calendar Year.

fff. "System-wide Weighted Average of Permit Limits" is a term applicable to SO_2 emissions and shall be calculated by:

i. For each Furnace listed in Table 4, multiplying the applicable permitted emission rate of SO_2 (in pounds per ton of glass produced) by the maximum annual glass production rate for each Furnace during Calendar Years 2009 through 2013. The permitted emission rate is the federally-enforceable limit SGCI has requested and

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obtained from the State for flint or colored glass as the case may be, in order to meet the requirements for the Furnaces listed in Table 4 identified in Paragraph 8.g.iii,

ii. Summing the result of the equation in Subparagraph i. above for each Furnace listed in Table 4, and

iii. Dividing the total of Subparagraph ii. above by the sum of all the maximum annual glass production rates for all Furnaces Listed in Table 4 from Subparagraph i. above.

ggg. "Title V Permit" shall mean a permit required by or issued pursuant to the requirements of 42 U.S.C. § 7661 - 7661f.

hhh. "Ton" or "tons" shall mean short ton or short tons (equal to 2000 pounds).

iii. "TSP" shall mean total suspended particulate.

jjj. "United States" shall mean the United States of America, acting on behalf of EPA.

IV. INJUNCTIVE RELIEF

7. **NO_X Emission Controls, Limits, and Compliance Schedule**

a. Interim NO_X Emission Limits:

i. For those Furnaces listed in Table 1, the NO_X emission limits in Table 1, expressed in tons of NO_X per Calendar

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Year, shall apply and shall remain in place until installation of controls pursuant to Table 2 and issuance of a new Permit including the emission limits outlined in Paragraphs 7.c. through 7.e.

ii. For the Calendar Year 2009, and for each Calendar Year thereafter until Paragraph 7.b. applies, SGCI shall comply with the following annual interim NO_X emission limits:

Table 1 – Interim NO_X Emission Limits

Facility and Furnace #	Interim NO_X Emission Limit (tons per year)	Interim NO_X Emission Factor (lb/ton)
Dolton #2	316.8 tpy	6.2
Dolton #3	305.5 tpy	6.2
Henderson #2	457.7 tpy	7.6
Sapulpa #50	407.3 tpy	6.2
Seattle #3	176.8 tpy	3.8
Seattle #4	529 tpy	14.4
Dunkirk #1	146 tpy	1.6
Dunkirk #2	160.6 tpy	1.6
Lincoln	468.4 tpy	n/a

iii. Except for the Dolton Facility, prior to NO_X CEMS installation and certification, compliance with the interim NO_X emission limits in Table 1 shall be demonstrated by conducting an EPA Method 7E (40 C.F.R. Part 60

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Appendix A) source test. Testing shall be conducted initially no later than twelve (12) months after the Date of Entry and once each Calendar Year thereafter until NO_X CEMS are installed and certified. A source test is not required the year that a NO_X CEMS is installed. Compliance with the annual ton per year interim limit in Table 1 shall be calculated by using the following equation:

$$NO_X = \left[\frac{PastTest \times 1stProd}{2000}\right] + \left[\frac{NewTest \times 2ndProd}{2000}\right]$$

Where: NO_X = NO_X Emissions (tpy)

PastTest = Last source test result (lb/ton). If no source test has been conducted pursuant to this Consent Decree, the Interim Emission Factor listed in Table 1 shall be used (lb/ton).

NewTest = New test from the year for which emissions are being calculated (lb/ton).

1stprod = Production from January 1st through the Day prior to the Day the new source test is commenced (tons of glass).

2ndprod = Production from the Day of the new source test through the end of that same Calendar Year (tons of glass).

Note: If SGCI elects to do more than one test in a year, emissions calculated on the Days following the second test, will be based on that second test.

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iv. For the Dolton Facility, emissions shall be calculated in the same way as above in Paragraph 7.a.iii, but testing shall be conducted initially no later than December 31, 2009, and then once again after December 31, 2010, but no later than December 31, 2011, for Furnaces #2 and #3. For the period of time in the Calendar Year 2009 before SGCI conducts the first source test under this Consent Decree, emissions shall be calculated based on the Interim Emission Factor listed in Table 1.

v. Upon NO_X CEMS installation and certification as required by this Consent Decree, compliance with the interim NO_X emission limit in Table 1 shall be demonstrated using emissions data generated by the NO_X CEMS in order to calculate all subsequent daily emission rates that are used to calculate the annual emission rate for the Calendar Year. For the first Calendar Year during which CEMS are installed and certified, the annual emissions calculated will be the sum of the tons of NO_X emitted on the Days when the emissions were determined from source test data (as calculated above in Paragraph 7.a.iii.) and the tons of NO_X

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emitted on the Days when emissions were determined by CEMS data.

b. NO_X Emission Controls and Compliance Schedule

i. For each Furnace in Table 2, SGCI shall operate the NO_X emission control device specified for that Furnace in Table 2.

Table 2 – NO_X Emission Controls and Compliance Schedule

Facility and Furnace Number	Controls	Deadline
Pevely #21	Oxyfuel Furnace	December 31, 2009
Ruston #2	OEAS	December 31, 2009
Wilson #29	Oxyfuel Furnace	December 31, 2009
Port Allegany #1	OEAS	December 31, 2010
Ruston #1	OEAS	December 31, 2010
Milford #15	Oxyfuel Furnace	December 31, 2010
Milford #16	Oxyfuel Furnace	December 31, 2015
Wilson #28	Oxyfuel Furnace	December 31, 2011
Dunkirk #2	Oxyfuel Furnace	December 31, 2012
Seattle #4	OEAS	December 31, 2012
Waxahachie	Oxyfuel Furnace	December 31, 2013
Henderson #2	OEAS	December 31, 2013
Madera #1	Oxyfuel Furnace	December 31, 2014
Pevely #20	Oxyfuel Furnace	December 31, 2013
Dunkirk # 1	Oxyfuel Furnace	December 31, 2013
Port Allegany #3	OEAS	December 31, 2013
Dolton #1	SCR	December 31, 2014
Dolton #2	SCR	December 31, 2014
Dolton #3	SCR	December 31, 2014
Burlington #6	Oxyfuel Furnace	December 31, 2015
Burlington #7	Oxyfuel Furnace	December 31, 2015
Seattle #5	Oxyfuel Furnace	December 31, 2015
Seattle #3	Oxyfuel Furnace	December 31, 2016
Henderson #1	Oxyfuel Furnace	December 31, 2016

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Seattle #2	Oxyfuel Furnace	December 31, 2017
Sapulpa #51	OEAS	December 31, 2018
Sapulpa #52	OEAS	December 31, 2018
Lincoln	Oxyfuel Furnace	December 31, 2018
Sapulpa #50	OEAS	December 31, 2018

c. For Furnaces with Oxyfuel Technology:

i. After the next Major Rebuild, but no later than the dates specified in Table 2, SGCI shall only Operate the Furnace using Oxyfuel technology.

ii. SGCI shall install, maintain and Operate the Oxyfuel Furnace such that the gas that provides the oxidant for combustion of the fuel is at least 90 percent oxygen.

iii. SGCI shall comply with the following applicable limits for Oxyfuel Furnaces:

1. Emission Rate 30-day Rolling Average Limit – Commencing on the first Operating Day after completion of the Furnace Startup period and CEMS Certification (where the CEMS has been installed), but no later than the date specified in Table 2, an Oxyfuel Furnace shall not exceed the Emission Rate 30-day Rolling Average of 1.3 pounds of NO_X per ton of glass produced, as

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measured using a NO_X CEMS (where available), except during the following periods (as set forth in this Subparagraph): Abnormally Low Production Rate Days; Furnace Startup; Malfunction of the Furnace; and Maintenance of the Furnace.

2. NO_X Limit during Abnormally Low Production Rate Days –For any Abnormally Low Production Rate Day SGCI may elect to exclude the emissions generated during that Day from the Emission Rate 30-day Rolling Average. During these Days, a CEMS shall be used to demonstrate compliance on a 24-hour Block Average with the following pound per day limit:

$$NO_{X\ Oxy\ Abn} = 1.3 \frac{lb\ NO_X}{ton} \times \left[\frac{P}{0.35}\right]$$

Where: $NO_{X\ Oxy\ Abn}$ = NO_X emission limit for an Oxyfuel Furnace during an Abnormally Low Production Rate Day, in pounds per day.
P = Furnace-specific production threshold as defined in Paragraph 10, in tons of glass produced per day.

3. Limits during Furnace Startup –

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a. Initial Heating Phase Operational Limit: SGCI shall burn no more than 5.0 million standard cubic feet of natural gas in that Furnace during the Initial Heating Phase of the Furnace Startup.

b. Refractory Soak and Seal Phase Operational Limits: SGCI shall comply with the following operational limits to limit NO_X emissions during the Refractory Soak and Seal Phase of the Furnace Startup:

   i. Burn no more than sixty million standard cubic feet natural gas in that Furnace;

   ii. Limit excess oxygen below 5 percent at the Furnace exhaust flue, as determined by handheld monitor, once per shift;

   iii. Limit Hot Spot Temperature to 2900 degrees F; and

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iv. Use thermal blankets or similar techniques to minimize air infiltration until expansion joints are sufficiently closed.

c. Furnace Stabilization Phase Operational Limits: SGCI shall comply with the following operational limits to limit NO_X emissions during the Furnace Stabilization Phase of the Furnace Startup:

i. Burn no more than ninety million standard cubic feet natural gas in that Furnace;

ii. Limit excess oxygen below 5 percent at the Furnace exhaust flue as determined by handheld monitor, once per shift; and

iii. Limit Hot Spot Temperature to 2900 degrees F.

4. NO_X limit during Malfunction of the Furnace – For any Operating Day where a Malfunction of the

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Furnace occurs for any period of time, SGCI may elect to exclude the emissions generated during that Operating Day (Operating Days if the event covers more than one Operating Day) from the Emission Rate 30-day Rolling Average. During the Malfunction Days excluded from the Emission Rate 30-day Rolling Average, a CEMS shall be used to demonstrate compliance on a 24-hour Block Average with the following pound per day limit:

$$NO_{X\ Oxy\ Malf} = 4 \times NO_{X\ Oxy\ Abn}$$

Where: $NO_{X\ Oxy\ Malf}$ = NO_X emission limit for an Oxyfuel Furnace during a Malfunction Day, in pounds per day.
$NO_{X\ Oxy\ Abn}$ = As defined in Paragraph 7.c.iii.2, NO_X emission limit for an Oxyfuel Furnace during an Abnormally Low Production Rate Day, in pounds per day.

5. NO_X limit during Maintenance of the Furnace – For any Operating Day where Maintenance activities on the Furnace are performed, SGCI may elect to exclude the Maintenance Day from the Emission Rate 30-day Rolling Average. For any Maintenance Day which is excluded from the 30-

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day rolling average, a CEMS shall be used to demonstrate compliance on a 24-hour Block Average with the following pound per day limit:

$$NO_{X\ Oxy\ Maint} = \frac{MH \times [4 \times NO_{X\ Oxy\ Abn}]}{24} + \frac{NH \times [NO_{X\ Oxy\ Abn}]}{24}$$

Where: $NO_{X\ Oxy\ Maint}$ = NO_X emission limit for an Oxyfuel Furnace during a Maintenance Day, in pounds per day.
$NO_{X\ Oxy\ Abn}$ = As defined in Paragraph 7.c.iii.2, NO_X emission limit for an Oxyfuel Furnace during an Abnormally Low Production Rate Day, in pounds per day.
MH = Hours of Maintenance
NH = Normal Hours = 24 - MH

d. For Furnaces with Selective Catalytic Reduction (SCR):

i. For the Dolton Facility, no later than the first Operating Day after the date specified in Table 2, SGCI must commence operation of SCR to control emissions from all three Furnaces. For all other Furnaces, no later than the first Operating Day after the conclusion of the Control Device Startup period, SGCI shall Operate the Furnace(s) passing all stack gases (except during up to the first seven (7) days of the Furnace Startup; during Malfunction of the SCR or Scrubber System/ESP; or during Maintenance of the SCR or Scrubber System/ESP) through a Selective

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Catalytic Reduction device in compliance with the following:

1. This SCR must be designed for a removal efficiency of at least 90 percent; and
2. When the SCR is operating, SGCI shall continuously operate the SCR according to the vendor recommendations in order to minimize emissions to the extent practicable taking into consideration ammonia slip.

ii. SGCI shall comply with the following applicable NO_X limits for all Furnaces to be equipped with SCR:

1. Emission Rate 30-day Rolling Average Limit – Commencing on the first Operating Day after completion of the Control Device Startup and CEMS Certification, but no later than the date specified in Table 2, SGCI shall not emit more than 1.3 pounds of NO_X per ton of glass produced on a 30-day rolling average, as measured using a NO_X CEMS (where available), except during the following periods (as set forth in this

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Subparagraph): Abnormally Low Production Rate Days for any of the Furnaces; Control Device Startup; up to the first seven (7) days of the Furnace Startup; Malfunction of the SCR or Scrubber System/ESP; and Maintenance of the SCR or Scrubber System/ESP;

2. NO_X Limit during Abnormally Low Production Rate Days – When any of the Furnace(s) ducted through an SCR is Operating at an Abnormally Low Production Rate, SGCI may elect to exclude emissions from all Furnaces connected to the SCR from the Emission Rate 30-day Rolling Average. During these Days, a CEMS shall be used to demonstrate compliance on a 24-hour Block Average with the following pound per day limit:

$$NO_{X\,SCR\,Abn} = 1.3\,\frac{lb\,NO_X}{ton} \times \left[\frac{P}{0.35}\right]$$

Where: $NO_{X\,SCR\,Abn}$ = NO_X emission limit for SCR during an Abnormally Low Production Rate Day on any of the Furnaces ducted through the SCR, in pounds per day
P = Sum of the Furnace-specific production thresholds as defined in Paragraph 10, in

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tons of glass produced per day for all of the Furnaces ducted through the SCR.

3. The first seven (7) days of the Furnace Startup – For no more than the first seven (7) Days of the Furnace Startup, the Furnace exhaust may bypass the SCR to avoid having the operating inlet temperature of the SCR fall below its operational range. During these bypass Days SGCI shall burn no more than 15.0 million standard cubic feet of natural gas in that Furnace;

4. NO_X limit during Startup of the SCR and Malfunction of the SCR or Scrubber System/ESP – For any Operating Day during the Startup of SCR or where a Malfunction of the SCR or Scrubber System/ESP occurs for any period of time, SGCI may elect to exclude the emissions generated during that Operating Day (or Operating Days if the event covers more than one Operating Day) from the Emission Rate 30-day Rolling Average. During the Malfunction Days excluded from the Emission

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Rate 30-day Rolling Average, a CEMS shall be used to demonstrate compliance on a 24-hour Block Average with the following pound per day limit:

$$NO_{X\ SCR\ Malf,SCR\ Startup} = 5 \times NO_{X\ SCR\ Abn}$$

Where: $NO_{X\ SCR\ Malf,\ SCR\ Startup}$ = NO_X emission limit for a Furnace using SCR during a Malfunction Day and during SCR Startup, in pounds per day.
$NO_{X\ SCR\ Abn}$ = As defined in 7.d.ii.2, NO_X emission limit for SCR during an Abnormally Low Production Rate Day, in pounds per day.

5. NO_X limit during Maintenance of the SCR or Scrubber System/ESP – For any Operating Day where Maintenance activities on the SCR or Scrubber System/ESP are performed, SGCI may elect to exclude the Maintenance Day from the Emission Rate 30-day Rolling Average. For any Day which is excluded from the 30-day rolling average, a CEMS shall be used to demonstrate compliance on a 24-hour Block Average with the following pound per day limit:

$$NO_{X\ SCR\ Maint} = \frac{MH \times [5 \times NO_{X\ SCR\ Abn}]}{24} + \frac{NH \times [NO_{X\ SCR\ Abn}]}{24}$$

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Where: $NO_{X\ SCR\ Maint}$ = NO_X emission limit for a Furnace using SCR during a Maintenance Day, in pounds per day
$NO_{X\ SCR\ Abn}$ = As defined in 7.d.ii.2, NO_X emission limit for a Furnace using SCR during an Abnormally Low Production Rate Day, in pounds per day
MH = Hours of Maintenance
NH = Normal Hours = 24 – MH

e. For Furnaces with OEAS as identified in Table 2

i. Except for the Sapulpa Furnaces, at the end of the Furnace Startup period following the next Major Rebuild, but no later than the first Operating Day after the dates specified in Table 2, SGCI shall only Operate the designated Furnace using OEAS technology.

ii. For the Sapulpa Furnaces, no later than the first Operating Day after the date specified in Table 2, SGCI shall only Operate the Furnaces using OEAS technology.

iii. SGCI shall comply with the following applicable NO_X limits for OEAS-equipped Furnaces:

1. Emission Rate 30-day Rolling Average Limit – Commencing on the first Operating Day after completion of the Furnace Startup and CEMS Certification (where a CEMS is available), but no

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later than the date specified in Table 2, SGCI shall not emit more than 3.8 pounds of NO_X per ton of glass produced on a 30-day Rolling Average (except for the Seattle Furnace #4 and Henderson Furnace #2, which shall achieve an Emission Rate 30-day Rolling Average equal to 0.6 multiplied by the result of the last stack test (in pounds per ton) prior to installing OEAS), as measured using a NO_X CEMS (where available), except during the following periods (as set forth in this Subparagraph): Abnormally Low Production Rate Days; Furnace Startup; Malfunction of the Furnace; and Maintenance of the Furnace.

2. NO_X Limit during Abnormally Low Production Rate Days – For any Abnormally Low Production Rate Day SGCI may elect to exclude the emissions generated during that Day from the Emission Rate 30-day Rolling Average. During these Days, a CEMS shall be used to demonstrate compliance on

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a 24-hour Block Average with the following pound per day limit:

$$NO_{X\ OEAS\ Abn} = 3.8\frac{lb\ NO_X}{ton} \times \left[\frac{P}{0.35}\right]$$

Where: $NO_{X\ OEAS\ Abn}$ = NO_X emission limit for an OEAS-Equipped Furnace during an Abnormally Low Production Rate Day, in pounds per day.
P = Furnace-specific production threshold as defined in Paragraph 10, in tons of glass produced per day.

3. Limits during Furnace Startup –

a. Initial Heating Phase Operational Limit: SGCI shall burn no more than 5.0 million standard cubic feet of natural gas in that Furnace during the Initial Heating Phase of the Furnace Startup.

b. Refractory Soak and Seal Phase Operational Limits: SGCI shall comply with the following operational limits to limit NO_X emissions during the Refractory Soak and Seal Phase of the Furnace Startup:

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i. Burn no more than sixty million standard cubic feet natural gas in that Furnace;

ii. Limit excess oxygen below 5 percent at the Furnace exhaust flue, as determined by handheld monitor, once per shift;

iii. Limit Hot Spot Temperature to 2900 degrees F; and

iv. Use thermal blankets or similar techniques to minimize air infiltration until expansion joints are sufficiently closed.

c. Furnace Stabilization Phase Operational Limits: SGCI shall comply with the following operational limits to limit NO_X emissions during the Furnace Stabilization Phase of the Furnace Startup:

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i. Burn no more than ninety million standard cubic feet natural gas in that Furnace;

ii. Limit excess oxygen below 5 percent at the Furnace exhaust flue as determined by handheld monitor, once per shift; and

iii. Limit Hot Spot Temperature to 2900 degrees F.

4. NO_X limit during Malfunction – For any Operating Day where a Malfunction of the Furnace occurs for any period of time, SGCI may elect to exclude the emissions generated during those Operating Day (Operating Days if the event covers more than one Operating Day) from the Emission Rate 30-day Rolling Average. During the Malfunction Days excluded from the Emission Rate 30-day Rolling Average, a CEMS shall be used to demonstrate compliance on a 24-hour Block Average with the following pound per day limit:

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$$NO_{X\ OEAS\ Malf} = 3 \times NO_{X\ OEAS\ Abn}$$

Where: $NO_{X\ OEAS\ Malf}$ = NO_X emission limit for an OEAS-Equipped Furnace during a Malfunction Day, in pounds per day
$NO_{X\ OEAS\ Abn}$ = As defined under Paragraph 7.e.iii.2, NO_X emission limit for an OEAS-Equipped Furnace during an Abnormally Low Production Rate Day, in pounds per day.

5. NO_X limit during Maintenance – For any Operating Day where Maintenance activities on the Furnace are performed, SGCI may elect to exclude the Maintenance Day from the Emission Rate 30-day Rolling Average. For any Maintenance Day which is excluded from the 30-day Rolling Average, a CEMS shall be used to demonstrate compliance on a 24-hour Block Average with the following pound per day limit:

$$NO_{X\ OEAS\ Maint} = \frac{MH \times [3 \times NO_{X\ OEAS\ Abn}]}{24} + \frac{NH \times [NO_{X\ OEAS\ Abn}]}{24}$$

Where: $NO_{X\ OEAS\ Maint}$ = NO_X emission limit for an OEAS-Equipped Furnace during a Maintenance Day, in pounds per day
$NO_{X\ OEAS\ Abn}$ = As defined in 7.e.iii.2., NO_X emission limit for an OEAS-Equipped Furnace during an Abnormally Low Production Rate Day, in pounds per day

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MH = Hours of Maintenance
NH = Normal Hours = 24 – MH

f. Monitoring: A CEMS, if available, shall be used to demonstrate compliance with the NO_X limits in Paragraph 7.c. through 7.e.. If the Facility does not have a CEMS when it is required to meet the limit in Paragraphs 7.c. through 7.e. above, compliance shall be demonstrated using data generated from annual stack tests complying with 40 C.F.R. Part 60 Appendix A Method 7E. If a CEMS Certification Event occurs, then the requirement to demonstrate compliance continuously with the limit for that Furnace will be suspended until Certification is completed (provided the seven-day test required for Certification is commenced the first Operating Day following the conclusion of the CEMS Certification Event).

g. Existing State/Local Limits: The limits in Paragraph 7 do not replace any current State/local limits and do not relieve SGCI of its obligation to comply with those limits.

h. Recordkeeping: For any Operating Day that SGCI is excluding emissions from the relevant Emission Rate 30-day Rolling Average, it shall record the date, the exception (Abnormally Low Production Rate Day, Furnace Startup, Control Device Startup, Malfunction, or Maintenance) under which it is excluded, a calculation of the applicable limit (pounds per

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day) according to the equations above, and the recorded emissions according to the CEMS (pounds per day). For any Operating Day excluded for Maintenance, SGCI shall record the total number of hours during which Maintenance occurred.

i. Recordkeeping and Reporting during Furnace Startup: In addition to the record keeping in Subparagraph h. above, during the applicable Furnace Startup period phases SGCI must also keep the following records:

i. For the Initial Heating Phase –

1. Total natural gas usage in that Furnace (in million standard cubic feet)

ii. For the Refractory Soak and Seal Phase –

1. Total natural gas usage in that Furnace (in million standard cubic feet);
2. Excess oxygen percentage at the Furnace exhaust flue (as determined by handheld monitor once per shift);
3. Hot Spot Temperature (measured once per shift); and

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4. A certified statement asserting whether thermal blankets or similar techniques were used during this period.

iii. For the Furnace Stabilization Phase –

1. Total natural gas usage in that Furnace (in million standard cubic feet);
2. Excess oxygen percentage at the Furnace exhaust flue (as determined by handheld monitor once per shift); and
3. Average Hot Spot Temperature (measured once per shift).

j. Where a Facility has more than one Furnace subject to the same emission limit (e.g., 1.3 lb/ton for Oxyfuel or 3.8 lb/ton for OEAS) compliance with the 30-day rolling limits set forth herein may be determined by averaging the emissions from all Furnaces subject to the same emission limit at a given facility.

k. Where a Facility has more than one Furnace routed through the same stack, but the Furnaces are not subject to the same emission limit, compliance shall be demonstrated using CEMS measuring each Furnace exhaust prior to the combination of the Furnace exhaust. However, if the

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exhaust system configuration prevents SGCI from installing a CEMS in each Furnace individually, compliance may be demonstrated by measuring the exhaust from one Furnace prior to the combined exhaust and measuring the total emissions after the stacks are combined (which will be used to determine emissions from the 2nd Furnace by subtracting the first Furnace's emission rate from the common exhaust emission rate).

l. No later than one year after the installation of Oxyfuel technology on Furnace #16 at Milford, SGCI shall install a Heat Recovery System at the Milford Facility. The System shall be designed to reduce or eliminate the energy demand of the Facility from external sources. SGCI must apply for a plan approval under 310 C.M.R. 7.02, if required by law, for this system twelve (12) months prior to the installation and comply with any monitoring, record keeping, and/or reporting required by law. This system must be constructed and operated in compliance with all applicable Federal and State laws.

8. **SO_2 Emission Controls, Limits, and Compliance Schedule**

a. Interim SO_2 Emission Limit:

i. On and after the first stack test following the Date of Entry (and on and after thirty (30) Days after the Date of Entry for a Furnace which has a certified SO_2 CEMS on the Date of

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Entry), all SGCI Furnaces listed in Table 3 below shall meet an interim limit of 2.5 pounds of SO_2 per ton of glass produced except during periods of Abnormally Low Production Rate Days, Furnace Startup, Malfunction, Maintenance, and Color Transition. This interim limit shall remain in effect until the Furnace is required to comply with an SO_2 emission limit specified in Paragraph 8 Subsections 8.c. through e. and g.

ii. Except for the Dolton Facility, prior to SO_2 CEMS installation and Certification, compliance with the interim SO_2 emission limit shall be demonstrated by conducting an EPA Method 6C (40 C.F.R. Part 60 Appendix A) source test. Testing shall be conducted initially no later than twelve (12) months after the Date of Entry and once each Calendar Year thereafter until SO_2 CEMS are installed and certified. A source test is not required the year that a SO_2 CEMS is installed.

iii. Emission Rate 30-day Rolling Average Limit – Upon SO_2 CEMS installation and Certification, SGCI shall not emit more than 2.5 pounds of SO_2 per ton of glass produced on a

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30-day Rolling Average, as measured using an SO_2 CEMS, except during the following periods (as set forth in this Subparagraph): Abnormally Low Production Rate Days; Furnace Startup; Malfunction of the Furnace; Color Transition; and Maintenance of the Furnace.

1. SO_2 Limit during Abnormally Low Production Rate Days – For any Abnormally Low Production Rate Day SGCI may elect to exclude the emissions generated during that Day from the Emission Rate 30-day Rolling Average when any Furnace, or any one of the Furnaces that is ducted through the same exhaust stack, is Operating at an Abnormally Low Production Rate. During these Days, a CEMS shall be used to demonstrate compliance on a 24-hour Block Average with the following pound per day limit for the Furnace(s) operating at Abnormally Low Production Rate.

$$SO_{2\ Interim\ Abn} = 2.5\frac{lb\ SO_2}{ton} \times \left[\frac{P}{0.35}\right]$$

Where: $SO_{2\ \text{Interim Abn}}$ = SO_2 interim emission limit for a Furnace during an Abnormally Low Production Rate Day, in pounds per day.

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P = Furnace-specific production threshold as defined in Paragraph 10, in tons of glass produced per day.

2. SO_2 limit during Furnace Startup –SGCI shall comply with the following operational limit to limit SO_2 emissions during all phases of Furnace Startup:

   a. During the startup period, SGCI will limit the amount of sulfur added to the batch materials to 2.6 pounds per ton of total batch material (including cullet) or less.

3. SO_2 limit during Malfunction – For any Operating Day where a Malfunction of the Furnace occurs for any period of time, SGCI may elect to exclude the emissions generated during that Operating Day (or Operating Days if the event covers more than one Operating Day) from the Emission Rate 30-day Rolling Average when any Furnace, or any one of the Furnaces that is ducted through the same exhaust stack, has a Malfunction. During the Malfunction Days excluded from the Emission Rate 30-day Rolling Average, a CEMS shall be used to

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demonstrate compliance on a 24-hour Block Average with the following pound per day limit for the Malfunctioning Furnace(s):

$$SO_{2\ Interim\ Malf} = 3 \times SO_{2\ Interim\ Abn}$$

Where: $SO_{2\ Interim\ Malf}$ = SO_2 interim emission limit for a Furnace during a Malfunction Day, in pounds per day.
$SO_{2\ Interim\ Abn}$ = As defined in Paragraph 8.a.iii.1, SO_2 interim emission limit for a Furnace during an Abnormally Low Production Rate Day, in pounds per day.

4. SO_2 limit during Maintenance – For any Operating Day where Maintenance activities on the Furnace are performed, SGCI may elect to exclude the Maintenance Day from the Emission Rate 30-day Rolling Average when any Furnace, or any one of the Furnaces that is ducted through the same exhaust stack, undergoes Maintenance. For any Day which is excluded from the 30-day rolling average, a CEMS shall be used to demonstrate compliance on a 24-hour Block Average with the following pound per day limit for the Furnace(s) undergoing Maintenance:

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$$SO_{2\ Interim\ Maint} = \frac{MH \times [3 \times SO_{2\ Interim\ Abn}]}{24} + \frac{NH \times [SO_{2\ Interim\ Abn}]}{24}$$

Where: $SO_{2\ \text{Interim Maint}}$ = SO_2 interim emission limit for a Furnace during a Maintenance Day, in pounds per day.
$SO_{2\ \text{Interim Abn}}$ = As defined in Paragraph 8.a.iii.1, SO_2 interim emission limit for a Furnace during an Abnormally Low Production Rate Day, in pounds per day.
MH = Hours of Maintenance
NH = Normal Hours = 24 – MH

5. SO_2 limit during Color Transition – For any Operating Days during which a Color Transition is occurring SGCI may elect to exclude the emissions on such Days from the Emission Rate 30-day Rolling Average when any Furnace, or any one of the Furnaces that is ducted through the same exhaust stack, has a Color Transition. During these Days, a CEMS shall be used to demonstrate compliance on a 24-hour Block Average with the following pound per day limit for the Furnace(s) having a Color Transition:

$$SO_{2\ Interim\ Col\ Tran} = 2 \times SO_{2\ Interim\ Abn}$$

Where: $SO_{2\ \text{Interim Col Tran}}$ = SO_2 interim emission limit for a Furnace during a Color Transition, in pounds per day.

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$SO_{2\ Interim\ Abn}$ = As defined in Paragraph 8.a.iii.1, SO_2 interim emission limit for a Furnace during an Abnormally Low Production Rate Day, in pounds per day.

iv. At Facilities with more than one Furnace subject to an interim limit, compliance may be determined by averaging the emissions from all such Furnaces at a given Facility.

v. When one or more Furnace(s) Operating under normal conditions are ducted through the same exhaust stack as one or more Furnace(s) that are Operating at an Abnormally Low Production Rate, has a Malfunction, undergoes Maintenance, or has a Color Transition, the combined daily emission limit for the Furnaces shall be the sum of the following SO_2 Normal Lb/day limit for the normally Operating Furnace(s) and the relevant limit set forth in Paragraph 8(a)(iii)(1), (3), (4), or (5) for the remaining Furnace(s).

$$SO_{2\ Normal\ lb/day} = 2.5 \frac{lb\ SO_2}{ton} \times ADP$$

Where: $SO_{2\ Normal\ lb/day}$ = SO_2 interim emission limit for a normally Operating Furnace during a day where a commonly ducted furnace is experiencing an event a set forth in Paragraph 8(a)(iii)(1), (3), (4), or (5).

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ADP = Actual Daily Production for the normally Operating Furnace.

vi. For the Dolton Facility, prior to SO_2 CEMS installation and Certification, compliance with the interim SO_2 emission limit shall be demonstrated by conducting an EPA Method 6C (40 C.F.R. Part 60 Appendix A) source test. Testing shall be conducted initially no later than December 31, 2009, and then once again after December 31, 2010, but no later than December 31, 2011, for all three Furnaces.

b. SO_2 Emission Controls and Compliance Schedule

i. SGCI shall operate one of the SO_2 emission control devices specified for that Furnace in Table 3.

Table 3 – SO_2 Emission Controls and Compliance Schedule

Facility	Controls	Deadline
Seattle #5	CCSS – See Section 8.f.	See Section 8.f.
Milford #15 & #16	Semi-dry Scrubber or CCSS – See Section 8.c. or 8.e.	December 31, 2015
Dunkirk #1 & #2	Semi-dry Scrubber or CCSS – See Section 8.c. or 8.e.	December 31, 2012
Waxahachie	Semi-dry Scrubber or CCSS – See Section 8.c. or 8.e.	December 31, 2013
Pevely #20 & #21	Semi-dry Scrubber or CCSS – See Section 8.c. or 8.e.	December 31, 2013
Dolton #1, #2, & #3	Dry Scrubber – See Section 8.d.	December 31, 2014
Port Allegany #1 & #3	Process controls – See Section 8.g.	See Section 8.g.
Henderson #1	Process controls – See Section 8.g.	See Section 8.g.
Henderson #2	Process controls – See Section 8.g.	See Section 8.g.

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Lincoln	Process controls – See Section 8.g.	See Section 8.g.
Burlington #6	Process controls – See Section 8.g.	See Section 8.g.
Burlington #7	Process controls – See Section 8.g.	See Section 8.g.
Sapulpa #50	Process controls – See Section 8.g.	See Section 8.g.
Sapulpa #51	Process controls – See Section 8.g.	See Section 8.g.
Sapulpa #52	Process controls – See Section 8.g.	See Section 8.g.
Ruston #1	Process controls – See Section 8.g.	See Section 8.g.
Ruston #2	Process controls – See Section 8.g.	See Section 8.g.
Seattle #2	Process controls – See Section 8.g.	See Section 8.g.
Seattle #3	Process controls – See Section 8.g.	See Section 8.g.
Seattle #4	Process controls – See Section 8.g.	See Section 8.g.
Wilson #28	Process controls – See Section 8.g.	See Section 8.g.
Wilson #29	Process controls – See Section 8.g.	See Section 8.g.

c. For Furnaces with Semi-dry Scrubbers

i. After the next Major Rebuild (except Milford Furnace #15 and Pevely Furnace #21), but no later than the first Operating Day after the dates specified in Table 3, SGCI shall Operate the Furnace passing all stack gases through a Semi-dry Scrubber except during periods of Control Device Startup, up to the first seven (7) days of the Furnace Startup, and during Malfunction of the Scrubber System or ESP and Maintenance on the Scrubber System or ESP.

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ii. SGCI shall comply with the following applicable SO_2 limits for Furnaces with Semi-dry Scrubbers:

1. SO_2 30-day rolling average limit – Commencing on the first Operating Day after completion of the Control Device Startup and CEMS Certification, but no later than the date specified in Table 3, a Furnace equipped with a Semi-dry Scrubber shall comply with the following limits as measured using an SO_2 CEMS, except during the following periods (as set forth in this Subparagraph): Control Device Startup, Furnace Startup, Malfunction of the Scrubber System or ESP, and Maintenance of the Scrubber System or ESP.

a. No dilution air will be intentionally added to the stack gases between the Scrubber System and the CEMS. When determining compliance with all Scrubber System limits, there shall be no oxygen correction, as per vendor guarantee.

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b. SGCI shall determine a daily Inlet 24-hour Block Average. The 30-day rolling average compliance limit for each Operating Day will depend on the daily Inlet 24-hour Block Average and will either be as defined in 8.c.ii.1.c. or 8.c.ii.1.d., but not both.

c. If the average daily Inlet calculated in 8.c.ii.1.b. is equal to or greater than 300 parts per million by volume dry (ppmvd) then the Removal Efficiency on a 24-hour Block Average for that Day and a Removal Efficiency 30-day Rolling Average shall be calculated. SGCI must operate the Semi-dry Scrubber such that the Removal Efficiency 30-day Rolling Average is greater than or equal to 85 percent.

d. If the average daily Inlet calculated in 8.c.ii.1.b. is less than 300 ppmvd, then the Scrubber Outlet 24-hour Block Average concentration for that Day and Scrubber

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Outlet 30-day Rolling Average shall be calculated. SGCI must operate the Semi-dry Scrubber such that the Scrubber Outlet 30-day Rolling Average is less than or equal to 45 ppmvd.

2. SO_2 limit during Control Device Startup or up to the first Seven (7) Days of Furnace Startup –SGCI shall comply with the following operational limit to limit SO_2 emissions during all phases of Control Device Startup or Furnace Startup:

   a. During the startup period, SGCI will limit the amount of sulfur added to the batch materials to 2.6 pounds per ton of total batch material (including cullet) or less.

   b. During no more than the first seven (7) Days of Furnace Startup, the Furnace exhaust may bypass the Scrubber System to avoid having the operating inlet temperature of the Scrubber System fall below its operational range. During these bypass Days, SGCI shall

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burn no more than 15.0 million standard cubic feet of natural gas in that Furnace.

3. SO_2 limit during Malfunction of the Scrubber System or ESP – For any Operating Day where a Malfunction of the Scrubber System or ESP occurs for any period of time, SGCI may elect to exclude the emissions generated during that Operating Day (or Operating Days if the event covers more than one Operating Day) from the Removal Efficiency 30-day Rolling Average and Scrubber Outlet 30-day Rolling Average emission rates . During the Malfunction Days excluded from the Removal Efficiency 30-day Rolling Average and Scrubber Outlet 30-day Rolling Average emission rates , a CEMS shall be used to demonstrate compliance on a 24-hour Block Average with the following pound per day limit:

$$SO_{2\ Scrub\ Malf} = 2.5\frac{lb\ SO_2}{ton} \times \left[\frac{P}{0.35}\right]$$

Where: $SO_{2\ \text{Scrub Malf}}$ = SO_2 emission limit for a Furnace with a Semi-dry Scrubber during a Malfunction Day, in pounds per day.

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P = Furnace-specific production threshold as defined in Paragraph 10, in tons of glass produced per day.

4. SO_2 limit during Maintenance of the Scrubber System– For any Operating Day where Maintenance activities on the Scrubber System or ESP are performed, SGCI may elect to exclude the Maintenance Day from the Removal Efficiency 30-day Rolling Average and Scrubber Outlet 30-day Rolling Average emission rates. For any Day which is excluded from the 30-day Rolling Average, a CEMS shall be used to demonstrate compliance on a 24-hour Block Average with the following pound per day:

$$SO_{2\ Scrub\ Maint} = \frac{MH \times [2.5 \frac{lb\,SO_2}{ton} \times \left[\frac{P}{0.35}\right]]}{24} + \frac{NH \times [\frac{1}{3} \times 2.5 \frac{lb\,SO_2}{ton} \times \left[\frac{P}{0.35}\right]]}{24}$$

Where: $SO_{2\ Scrub\ Maint}$ = SO_2 emission limit for a Furnace with a Semi-Dry Scrubber during a Maintenance Day, in pounds per day.
P = Furnace-specific production threshold as defined in Paragraph 10 in tons of glass produced per day.
MH = Hours of Maintenance
NH = Normal Hours = 24 – MH

d. For the Furnaces Equipped with Dry Scrubbers

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i. No later than the first Operating Day after the dates specified in Table 3, SGCI shall Operate the Furnace passing all stack gases through a Dry Scrubber except during periods of Control Device Startup, up to the first seven (7) days of the Furnace Startup, and during Malfunction of the Scrubber System or ESP and Maintenance on the Scrubber System or ESP.

ii. SGCI shall comply with the following applicable SO_2 limits for Furnaces with Dry Scrubbers:

1. SO_2 30-day Rolling Average Limit – Commencing on the first Operating Day after completion of the Control Device Startup and CEMS Certification, but no later than the date specified in Table 3, a Furnace equipped with a Dry Scrubber shall comply with the following limits as measured using an SO_2 CEMS, except during the following periods (as set forth in this Subparagraph): Control Device Startup, up to the first seven (7) days of Furnace Startup, Malfunction of the Scrubber System or

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ESP, and Maintenance of the Scrubber System or ESP.

a. No dilution air will be intentionally added to the stack gases between the Scrubber System and the CEMS. When determining compliance with all Scrubber limits, there shall be no oxygen correction, as per vendor guarantee.

b. SGCI shall determine a daily Inlet 24-Hour Block Average. The compliance limit for each Operating Day will depend on the daily Inlet 24-hour Block Average and will either be as defined in 8.d.ii.1.c. or 8.d.ii.1.d., but not both.

c. If the average daily Inlet calculated in Subparagraph 8.d.ii.1.b is equal to or greater than 167 parts per million by volume dry (ppmvd) then the Removal Efficiency on a 24-hour Block Average for that Day and a Removal Efficiency 30-day Rolling Average

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shall be calculated. SGCI must operate the Dry Scrubber such that the Removal Efficiency 30-day Rolling Average is greater than or equal to 70 percent.

d. If the average daily Inlet calculated in Subparagraph 8.d.ii.1.b. is less than 167 ppmvd, then the Outlet 24-hour Block Average for that Day and Outlet 30-day Rolling Average shall be calculated. SGCI must operate the Dry Scrubber such that the Outlet 30-day Rolling Average is less than or equal to 50 ppmvd.

2. SO_2 limit during Control Device Startup or up to the first seven (7) days of Furnace Startup –SGCI shall comply with the following operational limit to limit SO_2 emissions during all phases of Control Device Startup or up to the first seven (7) days of Furnace Startup:

a. During the startup period, SGCI will limit the amount of sulfur added to the batch materials

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to 2.6 pounds per ton of total batch material (including cullet) or less.

b. For no more than the first seven (7) Days of Furnace Startup, the Furnace exhaust may bypass the Scrubber System to avoid having the operating inlet temperature of the Scrubber System fall below its operational range. During these bypass Days, SGCI shall burn no more than 15.0 million standard cubic feet of natural gas in that furnace.

3. SO_2 limit during Malfunction of the Scrubber System or ESP – For any Operating Day where a Malfunction of the Scrubber System or ESP occurs for any period of time, SGCI may elect to exclude the emissions generated during that Operating Day (or Operating Days if the event covers more than one Operating Day) from the Removal Efficiency 30-day Rolling Average and Scrubber Outlet 30-day Rolling Average emission rates. During the Malfunction Days excluded from the Removal

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Efficiency 30-day Rolling Average and Scrubber Outlet 30-day Rolling Average emission rates, a CEMS shall be used to demonstrate compliance on a 24-hour Block Average with the following pound per day limit:

$$SO_{2\ Scrub\ Malf} = 2.5\frac{lb\ SO_2}{ton} \times \left[\frac{P}{0.35}\right]$$

Where: $SO_{2\ Scrub\ Malf}$ = SO_2 emission limit for a Furnace with a Dry Scrubber during a Malfunction Day, in pounds per day.
P = Furnace-specific production threshold as defined in Paragraph 10, in tons of glass produced per day.

4. SO_2 limit during Maintenance of the Scrubber System or ESP– For any Operating Day where Maintenance activities on the Scrubber System or ESP are performed, SGCI may elect to exclude the Maintenance Day from the Removal Efficiency 30-day Rolling Average and Scrubber Outlet 30-day Rolling Average emission rates. For any Maintenance Day which is excluded from the 30-day Rolling Average, a CEMS shall be used to

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demonstrate compliance on a 24-hour Block Average with the following pound per day limit:

$$SO_{2\ Scrub\ Maint} = \frac{MH \times [2.5 \frac{lb\ SO_2}{ton} \times \left[\frac{P}{0.35}\right]]}{24} + \frac{NH \times [\frac{2}{3} \times 2.5 \frac{lb\ SO_2}{ton} \times \left[\frac{P}{0.35}\right]]}{24}$$

Where: $SO_{2\ Scrub\ Maint}$ = SO_2 emission limit for a Furnace with a Dry Scrubber during a Maintenance Day, in pounds per day
P = Furnace-specific production threshold as defined in Paragraph 10, in tons of glass produced per day
MH = Hours of Maintenance
NH = Normal Hours = 24 – MH

e. For Furnaces with Cloud Chamber Scrubber Systems

i. SGCI may install a CCSS instead of a Semi-dry Scrubber under Paragraph 8.c. For any Furnace which SGCI elects to use a CCSS, after up to the first seven (7) days of the Furnace Startup after the next Major Rebuild, but no later than the first Operating Day after the dates specified in Table 3, SGCI shall Operate the Furnace passing all stack gases through the CCSS except during periods of Control Device Startup, Malfunction of the CCSS and Maintenance on the CCSS. If SGCI uses a CCSS in lieu of a Semi-dry Scrubber, it must notify the United States and the State.

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ii. SO_2 30-day Rolling Average Limit – Commencing on the first Operating Day after completion of the Control Device Startup and CEMS Certification, but no later than the date specified in Table 3, SGCI shall comply with all requirements in 8.c.ii.

iii. Compliance with the above emissions limitations shall be measured using an SO_2 CEMS.

f. Seattle #5 Cloud Chamber Scrubber System – SGCI installed a CCSS on the Seattle Furnace #5 in 2007. If SGCI removes or discontinues operation of the CCSS, it shall, within 9 months of permanently ceasing to operate the CCSS, construct and operate a Semi-dry Scrubber in order to pass all stack gases through a Semi-dry Scrubber that meets the emissions standards in 8.c.ii.

g. For Furnaces listed in Table 4

i. Process controls may include technologies and methods that are currently undertaken or will be undertaken to reduce SO_2 emissions.

ii. Process controls shall be implemented at the following Furnaces and will be referred to as "Furnaces listed in Table 4."

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Table 4 – Process-Controlled Furnaces

Port Allegany Furnace #1
Port Allegany Furnace #3
Henderson Furnace #1
Henderson Furnace #2
Wilson Furnace #28
Wilson Furnace #29
Burlington Furnace #6
Burlington Furnace #7
Sapulpa Furnace #50
Sapulpa Furnace #51
Sapulpa Furnace #52
Lincoln Furnace
Ruston Furnace #1
Ruston Furnace #2
Seattle Furnace #2
Seattle Furnace #3
Seattle Furnace #4

iii. By no later than June 30, 2015, SGCI shall submit a complete application to the State/local permitting authority for two federally-enforceable SO_2 emission limits measured on a 30-day Rolling Average Emission Rate for each of the Furnaces listed in Table 4. One limit applies during times when the Furnace is producing flint (clear) glass and the other applies when the Furnace is producing colored (any other) glass. Both limits must be expressed in the form of

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pounds of SO_2 per ton of glass produced. No proposed SO_2 limit can be higher than 2.5 pounds per ton of glass produced, determined as a 30-day rolling average. The limit shall apply during all Operating Days except during Furnace Startup, Maintenance of the Furnace, Malfunction of the Furnace, Color Transition, and Abnormally Low Production Rate Days. For these exception periods, SGCI shall obtain federally-enforceable SO_2 emission limits as follows:

1. SO_2 Limit during Abnormally Low Production Rate Days – For any Abnormally Low Production Rate Day SGCI may elect to exclude the emissions generated during that Day from the Emission Rate 30-day Rolling Average. During these Days, a CEMS shall be used to demonstrate compliance on a 24-hour Block Average with the following pound per day limit:

$$SO_{2\ 2nd\ Abn} = [Applicable\ Permit\ Limit]\frac{lb\ SO_2}{ton} \times \left[\frac{P}{0.35}\right]$$

Where: $SO_{2\ 2nd\ Abn}$ = SO_2 emission limit for a Furnace listed in Table 4 during an

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Abnormally Low Production Rate Day, in pounds per day.
Applicable Permit Limit = This is the permit limit that SGCI receives for each Furnace listed in Table 4 under Paragraph 8.g.iii for Color or Flint, whichever is currently being melted, in lb SO_2 per ton of glass.
P = Furnace-specific production threshold as defined in Paragraph 10, in tons of glass produced per day.

2. SO_2 limit during Furnace Startup –SGCI shall comply with the following operational limit to limit SO_2 emissions during all phases of Furnace Startup:

   a. During the startup period, SGCI will limit the amount of sulfur added to the batch materials to 2.6 pounds per ton of total batch material (including cullet) or less.

3. SO_2 limit during Malfunction of the Furnace – For any Operating Day where a Malfunction of the Furnace system occurs for any period of time, SGCI may elect to exclude the emissions generated during that Operating Day (or Operating Days if the event covers more than one Operating Day) from the Emission Rate 30-day Rolling Average. During

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the Malfunction Days excluded from the Emission Rate 30-day Rolling Average, a CEMS shall be used to demonstrate compliance on a 24-hour Block Average with the following pound per day limit:

$$SO_{2\ 2nd\ Malf} = 3 \times 2.5 \frac{lb\ SO_2}{ton} \times \left[\frac{P}{0.35}\right]$$

Where: $SO_{2\ 2nd\ Malf}$ = SO_2 emission limit for a Furnace listed in Table 4 during a Malfunction Day, in pounds per day.
P = Furnace-specific production threshold as defined in Paragraph 10 in tons of glass produced per day.

4. SO2 limit during Maintenance – For any Operating Day where Maintenance activities on the Furnace are performed, SGCI may elect to exclude the Maintenance Day from the Emission Rate 30-day Rolling Average. For any Day which is excluded from the 30-day Rolling Average, a CEMS shall be used to demonstrate compliance on a 24-hour Block Average with the following pound per day limit:

$$SO_{2\ 2nd\ Maint} = \frac{MH \times [3 \times 2.5 \frac{lb\ SO_2}{ton} \times \left[\frac{P}{0.35}\right]]}{24} + \frac{NH \times \left[\frac{P}{0.35}\right] \times [App\ Limit] \frac{lb\ SO_2}{ton}}{24}$$

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Where: $SO_{2\ 2nd\ Maint}$ = SO_2 emission limit for a Furnace listed in Table 4 during a Maintenance Day, in pounds per day.
P = Furnace-specific production threshold as defined in Paragraph 10 in tons of glass produced per day.
MH = Hours of Maintenance
NH = Normal Hours = 24 – MH
App Limit = This is the permit limit that SGCI receives for each Furnace listed in Table 4 under Paragraph 8.g.iii for Color or Flint, whichever is currently being melted, in lb SO_2 per ton of glass.

5. SO_2 limit during Color Transition – For any Operating Day on which a Color Transition occurs SGCI may elect to exclude the emissions generated during that Day from the Emission Rate 30-day Rolling Average. During these Days, a CEMS shall be used to demonstrate compliance on a 24-hour Block Average with the following pound per day limit:

$$SO_{2\ 2nd\ Col\ Tran} = 2 \times 2.5 \frac{lb\ SO_2}{ton} \times \left[\frac{P}{0.35}\right]$$

Where: $SO_{2\ 2nd\ Col\ Tran}$ = SO_2 emission limit for a Furnace listed in Table 4 during a Color Transition Day, in pounds per day.
P = Furnace-specific production threshold as defined in Paragraph 10, in tons of glass produced per day.

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iv. Following the submission of a complete permit application, SGCI shall cooperate with the applicable State/local permitting authority by promptly submitting all information requested by the State/local permitting authority.

v. At the Wilson Facility, by December 31, 2011, SGCI shall apply for SO_2 limits of 400 tons of SO_2 per Calendar Year for Furnaces #28 and #29 combined, as measured by SO_2 CEMS.

vi. By no later than June 30, 2015, SGCI shall apply for permanent SO_2 emission limits in compliance with 8.g.iii-xii. for all Furnaces listed in Table 4 through Permits issued by the State/local agency.

vii. SGCI shall continuously comply with each proposed SO_2 emission limit starting on the date of the Permit application and throughout the duration of the Consent Decree except during periods of Abnormally Low Production Rate Days, Furnace Startup, Malfunction of the Furnace, Maintenance of the Furnace, and Color Transition.

viii. An SO_2 CEMS shall be used to demonstrate compliance with the SO_2 limits for Furnaces listed in Table 4.

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ix. Once all Furnaces listed in Table 4 have received a Permit with 30-day Rolling Average limits for flint glass, the SO_2 System-wide Weighted Average of 30-day Rolling Average Emission Rate Permit Limits of all Furnaces listed in Table 4 obtained for flint glass shall not be greater than 1.95 pounds of SO_2 per ton of glass produced.

x. Once all Furnaces listed in Table 4 have received a Permit with 30-day Rolling Average limits for colored glass, the SO_2 System-wide Weighted Average of 30-day Rolling Average Emission Rate Permit Limits of all Furnaces listed in Table 4 obtained for colored glass shall not be greater than 2.25 pounds of SO_2 per ton of glass produced.

xi. Beginning in the 2011 Calendar Year and ending on December 31, 2015, SGCI shall achieve System-wide Weighted Annual Average Actual Emissions of no greater than 1.95 pounds of SO_2 per ton of glass produced. Each year the weighted average will include all Furnaces listed in Table 4 equipped with CEMS and will include emissions and production from any color of glass. This limit shall include emissions from all times the Furnaces are firing fuel

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except Abnormally Low Production Rate Days, Furnace Startup, Malfunction, Maintenance of the Furnace, and Color Transition.

xii. By no later than 6 months after all Furnaces listed in Table 4 have received Permits with 30-day Rolling Average limits for flint and colored glass, SGCI shall submit a report that demonstrates compliance with Paragraph 8.g.ii. to 8.g.xi. including, but not limited to, all applicable Permits containing the SO_2 emission limits for the Furnaces listed in Table 4 and a calculation of the SO_2 System-wide Weighted Average Permit Limit for flint under Paragraph 8.g.ix. and colored glass under Paragraph 8.g.x.

h. Monitoring: A CEMS, if available, shall be used to demonstrate compliance with the SO_2 limits in Paragraphs 8.c. through 8.g. using data generated by the SO_2 CEMS. If the Facility does not have a CEMS when it is required to meet the limit in Paragraphs 8.c. through 8.g. above, compliance shall be demonstrated using data generated from annual stack tests complying with 40 C.F.R. Part 60 Appendix A. If a CEMS Certification Event occurs, then the requirement to demonstrate compliance continuously with the limit for that Furnace will be suspended until

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Certification is completed (provided the seven-day test required for Certification is commenced the first Operating Day following the conclusion of the CEMS Certification Event).

i. Existing State/Local Limits: The limits in Paragraph 8 do not replace any current State/local limits and do not relieve SGCI of its obligation to comply with those limits.

j. Recordkeeping: For any Operating Day that SGCI is excluding emissions from the relevant Emission Rate 30-day Rolling Average, it shall record the date, the exception (Abnormally Low Production Rate Day, Furnace Startup, Furnace Malfunction, Furnace Maintenance, or Color Transition) under which it is excluded, a calculation of the applicable limit (pounds per day) according to the equations above, and the recorded emissions according to the CEMS, if a certified CEMS is available (in pounds per day).

k. Recordkeeping and Reporting during Furnace Startup: In addition to the record keeping in Subparagraph j. above, during all Furnace Startup phases SGCI must also keep the following records:

i. During the startup period, SGCI will record the amount of sulfur added to the batch materials in pounds per ton of total batch material.

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l. Where a Facility has more than one Furnace subject to the same emission limit, compliance with the 30-day rolling average limits set forth herein may be determined by averaging the emissions from all Furnaces subject to the same emission limit at a given Facility.

m. For the Furnaces at Burlington, Wilson, and Seattle, the limits set forth in or determined in accordance with Paragraph 8 shall be increased by 2.0 pounds per ton when burning fuel oil. If additional Furnaces are allowed by a Permit to burn fuel oil, the required limit under this Consent Decree shall be increased by 2.0 pounds per ton for periods when burning fuel oil. No Furnace may combust fuel oil which has a sulfur content in excess of 0.5 percent, by weight.

n. Compliance with a Sulfuric Acid Mist emission limit of 1.0 pounds per ton of glass produced shall be demonstrated by a stack test performed using Conditional Test Method 13A or B on all Furnaces on or before December 31, 2011. Stack testing shall be required to be performed after this initial test only once during the life of each Title V permit renewal.

9. **PM Emission Controls, Limits, and Compliance Schedule**

a. Interim PM Emission Limit:

i. On and after the first stack test following the Date of Entry, SGCI shall comply with an interim PM emission limit of

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1.0 pound of filterable PM per ton of glass produced on all glass Furnaces listed in Table 5 (except for Milford #15 and #16, and Seattle #5).

ii. Except for the Dolton facility, compliance with this interim PM emission limit shall be demonstrated by conducting an EPA Method 5 (40 C.F.R. Part 60 Appendix A) source test. Testing shall be conducted initially no later than 12 months after the Date of Entry and once each Calendar Year thereafter.

iii. For the Dolton Facility, compliance with the interim PM emission limit shall be demonstrated by conducting an EPA Method 5 (40 C.F.R. Part 60 Appendix A) source test on each of the three Furnaces. Testing on each of the three Furnaces shall be conducted initially no later than December 31, 2009, and then once again between January 1, 2011, and December 31, 2011.

iv. The interim PM emission limit shall remain in effect until the Furnace is required to comply with a PM emission limit specified in Paragraph 9.c. through 9.h. below. Stack testing for demonstration of compliance with interim limits

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shall not be required in a Calendar Year during which compliance with limits determined under Paragraphs 9.c. or 9.d. is demonstrated.

b. PM Emission Controls and Compliance Schedule

i. For each Furnace in Table 5, SGCI shall operate one of the PM emission control devices or methods specified for that Furnace in Table 5.

Table 5 – Controls for Particulate Matter and Compliance Schedule

Facility and Furnace #	Controls	Deadline
Seattle #5	CCSS – See Section 9.e.	See Section 9.e.
Milford #15 & #16	Electrostatic Precipitator, or CCSS	December 31, 2015
Dunkirk #1 & #2	Electrostatic Precipitator, or CCSS	December 31, 2012
Waxahachie	Electrostatic Precipitator, or CCSS	December 31, 2013
Pevely #20 & #21	Electrostatic Precipitator, or CCSS	December 31, 2013
Dolton #1, #2, & #3	Electrostatic Precipitator	December 31, 2014
Port Allegany #1	Process controls – See Section 9.f.	December 31, 2009
Port Allegany #3	Process controls – See Section 9.f.	December 31, 2013
Henderson #1	Process controls – See Section 9.f.	December 31, 2014
Henderson #2	Process controls – See Section 9.f.	December 31, 2009
Lincoln	Process controls – See Section 9.f.	December 31, 2016
Burlington #6	Process controls – See Section 9.f.	December 31, 2012
Burlington #7	Process controls – See Section 9.f.	December 31, 2013
Sapulpa #50	Process controls – See Section 9.f.	December 31, 2015
Sapulpa #51	Process controls – See Section 9.f.	December 31, 2010
Sapulpa #52	Process controls – See Section 9.f.	December 31, 2011
Ruston #1	Process controls – See Section 9.f.	December 31, 2012
Ruston #2	Process controls – See Section 9.f. and 9.g.	December 31, 2012
Seattle #2	Process controls – See Section 9.f.	December 31, 2015
Seattle #3	Process controls – See Section 9.f.	December 31, 2015
Seattle #4	Process controls – See Section 9.f	December 31, 2012

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Wilson #28	Process controls – See Section 9.f. and 9.h.	December 31, 2012
Wilson #29	Process controls – See Section 9.f. and 9.h.	December 31, 2012

c. For Furnaces with Electrostatic Precipitator

i. After up to the first seven (7) days of the Furnace Startup period following the next Major Rebuild (except Milford Furnace #15 and Pevely Furnace #21), but no later than the first Operating Day after the dates specified in Table 5, SGCI shall Operate the Furnace passing all stack gases through an Electrostatic Precipitator (ESP), except during periods of Control Device Startup, Malfunction of the ESP, and Maintenance of the ESP.

ii. SGCI shall comply with the PM emission limit of 0.2 pounds of filterable PM per ton of glass produced (or 0.26 pounds of filterable PM per ton of glass produced when the Furnace is fired on fuel oil) and 0.45 pounds of total PM per ton of glass produced (or 0.51 pounds of total PM per ton of glass produced when the Furnace is fired on fuel oil) for those Furnaces equipped with an ESP but no SCR. Furnaces equipped with an ESP and an SCR shall comply with the PM emission limit of 0.2 pounds of filterable PM

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per ton of glass produced (or 0.26 pounds of filterable PM per ton of glass produced when the Furnace is fired on fuel oil); for such Furnaces there shall be no limit for total or condensable PM.

iii. Compliance with the PM limit shall be demonstrated through annual stack tests. SGCI shall conduct an initial stack test on each Furnace no later than twelve (12) months after the applicable compliance date listed in Table 5 and once each Calendar Year thereafter.

1. Filterable PM shall be determined using EPA Method 5 (40 C.F.R. Part 60 Appendix A).
2. Total PM shall be determined using Method 5 (40 C.F.R. Part 60 Appendix A) and EPA Method 202 (40 C.F.R. Part 51 Appendix M).

d. For Furnaces with Cloud Chamber Scrubber System

i. SGCI may install a CCSS instead of an ESP. For any Furnace where SGCI elects to use a CCSS instead of an ESP, after the first seven (7) days of the Furnace Startup period following next Major Rebuild, but no later than the first Operating Day after the dates specified in Table 5, SGCI shall Operate the

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Furnace passing all stack gases through a CCSS except during periods of Control Device Startup, Malfunction of the CCSS, and Maintenance of the CCSS.

ii. If SGCI uses a CCSS in lieu of an ESP, it must notify the United States and the State.

iii. Any CCSS installed in lieu of an ESP (excluding the experimental CCSS installed on Seattle Furnace #5) shall comply with all requirements in 9.c.ii. and 9.c.iii.

e. Seattle #5 Cloud Chamber Scrubber System – SGCI installed a CCSS on the Seattle Furnace #5 in 2007. If SGCI removes or discontinues operation of the CCSS, it shall, within nine (9) months of permanently ceasing to operate the CCSS, construct and operate an ESP in order to pass all stack gases through an ESP that meets the emissions standards in 9.c.

f. PM Emission Limits for Furnaces listed in Table 4

i. For each Furnace listed in Table 4, SGCI shall comply with the PM emission limit of 1.0 pound of total PM per ton of glass produced for each Furnace by the dates specified in Table 5.

ii. Compliance with the PM limits in Paragraph 9.f.i. shall be demonstrated by annual stack tests. Total PM shall be

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