

Facility Name: **Occidental Chemical - Augusta Silicate Plant**
 City: Augusta
 County: Richmond
 AIRS #: 04-13-245-00023

Application #: TV-9281
 Date Application Received: October 22, 1996
 Date Application Deemed Administratively Complete: April 28, 1997
 Date of Draft Permit:
 Permit No: 2819-245-0023-V-01-0

Program	Review Engineers	Review Managers
SSPP/ASU	Wendy Troemel	Heather Abrams
SSCP/ASU	Alicia Stephens	Lou Musgrove
ISMP	Mark McDonald	Richard Taylor
Toxics	N/A	N/A

Introduction

This narrative is being provided to assist the reader in understanding the content of the attached operating permit amendment. Complex issues and unusual items are explained herein simpler terms and/or greater detail than is sometimes possible in the actual permit. This permit is being issued pursuant to: (1) Georgia Air Quality Act, O.C.G.A § 12-9-1, et seq. and (2) Georgia Rules for Air Quality Control, Chapter 391-3-1. Section 391-3-1-.03(10) of the Georgia Rules for Air Quality Control incorporates requirements of Part 70 of Chapter I of Title 40 of the Code of Federal Regulations promulgated pursuant to the Federal Clean Air Act. The following narrative is designed to accompany the draft permit and is presented in the same general order as the permit. The purpose of this narrative is to provide information only. Any revisions made to the permit in response to comments received during the public participation and EPA review process will be described in an addendum to this narrative.

I. Facility Description**A. Facility Identification**

1. Facility Name

Occidental Chemical – Augusta Silicate Plant

2. Parent/Holding Company Name

Occidental Chemical Corporation

3. Previous and/or Other Name(s)

E.I. DuPont
Power Silicates
Power Silicates Manufacturing, Inc.

4. Facility Location

1620 Marvin Griffin Road
Augusta, Georgia

5. Attainment or Non-attainment Area Location

The facility is located in an attainment area.

6. Class I Area Impacts

The facility is not located within 100 km of a Class I area.

B. Site Determination

The application indicates that there are no other facilities which could possibly be contiguous or adjacent and under common control.

C. Existing Permits

Table 1 below lists all current permits (including Part 71 permits), as amended, issued to the facility. Based on a comparative review of Item 19 in Section 1.10 of the Title V application and the "Permit" file(s) on the facility found in the Air Branch office, comments are listed in Table 2 below.

Table 1: List of Current Permits as Amended

Permit Number and/or Purpose of Issuance	Date of Issuance and Date of Amendments (if any)	Comments	
		Yes	No
2819-121-12103	September 24, 1996		X
Amendment to 2819-121-12103	August 7, 1997	X	
Amendment to 2819-121-12103	August 27, 1997	X	

Table 2: Comments on Specific Permits

Permit Number	Comments
2819-121-12103	Issued after permit application was submitted; our records show this permit was amended to install an electric booster system on the furnace to increase production capacity.
2819-121-12103	Issued after permit application was submitted; our records show this permit was modified to correct certain Conditions from the previous amendment.

D. Process Description**1. SIC Code(s)**

Major - 2819
Other - Not Applicable

2. Description of Product(s)

Sodium silicate

3. Overall Facility Process Description

Sand and soda ash are mixed and added to a furnace (operating at 2400-2500°F) to produce molten glass. This molten glass flows out of the furnace onto a conveyor. While on the conveyor, cold water is poured onto the molten glass, causing it to shatter. This shattered glass is blown dry with air, forming irregularly shaped rocks, and dropped into a glass hopper. The glass hopper feeds a batch-dissolving tank, which dissolves the glass rocks in water (at 100 psi and 360°F). The final product is a sodium silicate solution with ~38% solids.

An electric booster system was added in 1997 to increase the production rate. The system heats molten glass by running current between immersed electrodes; this increases the molten materials temperature, which allows an increase in production rate. Since the size of the furnace prevents the combustion of more natural gas in the furnace, two support boilers can increase natural gas consumption in order to supply additional steam. Steam is also used for housekeeping, to heat pipes, and to heat the dissolving and storage tanks.

Most of the emissions are generated by the furnace and boilers, which use only natural gas and propane as fuel. Nitrogen oxides (NO_x) are emitted from the burning fuel and the reaction of nitrogen and oxygen in the furnace. The furnace emissions also include particulate matter (PM). The furnace flue gas is vented through the smaller waste heat boiler where the heat is used to generate steam. Emissions from the waste heat boiler and the furnace exhaust through one stack. NO_x, PM, carbon monoxide (CO), and volatile organic compound (VOC) emissions are produced from both boilers. Other sources of PM include the loading, unloading and mixing of solids.

The plant operates continuously, and has no control equipment; therefore, the potential and actual emissions are equivalent.

The facility has a current production rate of 200 tons per day of solids.

4. Overall Process Flow Diagram (optional)

Please see Process Flow Diagram in the Part 70 Application.

E. Regulatory Status

1. PSD/NSR

When the facility increased its production capability in August 1997, the potential emissions for nitrogen oxides were calculated to be 290 tons per year. However, the facility agreed to take a limit on nitrogen oxides of 20 tons per month (240 tons per year) to avoid PSD. However, it was determined that the previous permit writer overlooked the fact that the 2819 SIC Code was one of those listed in the PSD Source Categories and therefore the modification did not go through the proper netting exercise. The facility-wide nitrogen oxides limit should be the average nitrogen oxide emissions from June 1995 to May 1997 (151.6 tons per year) plus 40 tons. The permit will be changed to reflect this limit.

2. Title V Major Source Status by Pollutant

Table 3: Title V Major Source Status

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

3. MACT Standards

The site is not major for HAPs.

4. Program Applicability

Program Code	Applicable (y/n)
Program Code 6 - PSD	No
Program Code 8 – Part 61 NESHAP	No
Program Code 9 - NSPS	Yes
Program Code M – Part 63 NESHAP	No
Program Code V – Title V	Yes

Regulatory Analysis

II. Facility Wide Requirements

A. Emission and Operating Caps

In August 1997, the facility added a 1500 kVA electric booster system to the furnace in order to increase production from 120 tons solids/day to 200 tons solids/day. A summary from the July 29, 1997 PSD avoidance report follows.

The Waste Heat Boiler (BL01) and the Furnace (FR01) both vent through the same stack. A Sept. 1996 stack test showed emissions of 39.62 pounds per hour of nitrogen oxides. Based on continuous operation and the old production rate of 120 tons solids/year, the stack emissions were calculated to be 174 tons nitrogen oxides per year. Using a ratio of the old production rate to the new rate, the potential stack emissions were calculated to be 290 tons nitrogen oxides per year. In order to avoid PSD review, the facility agreed to take a limit of 240 tons nitrogen oxides per year.

Unfortunately, it was overlooked that the SIC Code of 2819 that falls under the PSD Major Source Categories (Chemical process plant) and therefore has a 100 tons per year nitrogen oxides threshold and a cap of 40 tons per year increase for nitrogen oxides. Prior to the 1997 modification, the facility's nitrogen oxide emission tests showed 170.3 tons per year of emissions, clearly over the major source threshold. The facility then performed a nitrogen oxide emission test in October 1999 after the modification, but the average emission rate during the test was 259.3 tons per year. The facility agreed to install low-NO_x burners on the furnace in order to lower emissions. A nitrogen oxide emission test performed July 25, 2000 showed NO_x emissions at 139.8 tons per year.

The facility-wide annual nitrogen oxides emission limit should be the average nitrogen oxide emissions from June 1995 to May 1997 (151.6 tons per year) plus 40 tons, or 191.6 tons. The latest stack testing shows that the facility can comply with this limit. The permit will require yearly testing for nitrogen oxides in order to prove compliance with the limit, short of the facility installing continuous emissions monitors for nitrogen oxides.

B. Applicable Rules and Regulations

None Applicable

C. Compliance Status

The facility has indicated compliance for the entire facility.

D. Operational Flexibility

The facility did not request operational flexibility in the application.

E. Permit Conditions

Permit Condition 2.1.1 limits the nitrogen oxide emissions to 191.6 tons during any twelve consecutive months. This is a change in the PSD avoidance limit from permit number 2819-121-12103, condition 9, as discussed above.

III. Regulated Equipment Requirements

A. Brief Process Description

Please see section I.D.3. for a process description.

B. Equipment List for the Process

Emission Units		Specific Limitations/Requirements		Air Pollution Control Devices	
ID No.	Description	Applicable Requirements/Standards	Corresponding Permit Conditions	ID No.	Description
FR01	Furnace	40 CFR 60 Subpart CC, 391-3-1-.02(2)(b), 391-3-1-.02(2)(e)	2.2.1, 3.3.2, 3.3.3, 3.4.1, 3.4.4, 4.2.1, 4.2.2, 4.2.3, 5.2.1, 6.1.7, 6.2.2, 6.2.3, 6.2.5, 6.2.6, 6.2.7	None	None
BL02	Primary Boiler	40 CFR 60 Subpart Dc, 391-3-1-.02(2)(d)	2.2.1, 3.3.1, 3.4.2, 3.4.3, 6.2.2, 6.2.4, 6.2.5, 6.2.6, 6.2.8	None	None

* Generally applicable requirements contained in this permit may also apply to emission units listed above.

C. Equipment & Rule Applicability

The Waste Heat Boiler (Source Code BL01) is exempt from permitting since the rated heat input capacity is less than 10 million BTU/hour and only burns natural gas or propane (as stipulated in permit number 2819-121-12103, Condition 13). It operates at 8.4 million BTU/hour. It is included in Attachment B, Description of Fuel Burning Equipment.

The facility also listed two emission points applicable to only Georgia Rule 391-3-1-.02(2)(n), which covered PM emissions from loading, unloading, and mixing the product. These were included in Attachment B, Generic Emission Groups.

The Furnace (Source Code FR01) is subject to the following rules and regulations:

- Georgia Rule 391-3-1-.02(2)(b) - Visible Emissions. This rule limits the emission opacity to 40 percent.
- Georgia Rule 391-3-1-.02(2)(e) - Particulate Emissions from Manufacturing Processes. This rule limits the particulate matter quantities in the emissions from the Furnace.
- The furnace is applicable to 40 CFR 60 Subpart CC – “Standards of Performance for Glass Manufacturing Plants”, although only one of the requirements is applicable. The furnace is subject to the rule since EPA did not define a “glass manufacturing plant” in the standard. The proposed rule (as shown in the June 15, 1979 Federal Register) shows both a definition for glass manufacturing plant and glass. However, the October 7, 1980

Federal Register shows that “the term ‘glass manufacturing plant’ was removed from Section 60.291 - Definitions of the regulation as it was not needed”. Since that definition was removed, the facility is subject due to §60.290(a) - “Each glass melting furnace is an affected facility to which the provisions of this subpart apply.” The definition of glass melting furnace is given as “... a unit comprising a refractory vessel in which raw materials are charged, melted at high temperature, refined, and conditioned to product molten glass”. The facility’s furnace (Source Code FR01) meets these requirements. As mentioned above, glass is not defined in the standard. *Hawley’s Condensed Chemical Dictionary* defines glass as “a ceramic mixture of a uniformly dispersed mixture of silica (75%), soda ash (20%) and lime (5%)...”. The facility’s raw materials and process is similar to this definition. The definition also includes water glass, a common name for the sodium silicate solution that exits the furnace. Sodium silicate (water glass) is defined by *Hawley’s* as “the simplest form of glass”. Therefore, it appears that the facility is subject to 40 CFR 60 Subpart CC.

Upon close inspection of 40 CFR 60 Subpart CC, the facility is only subject to §60.296(a), which requires notification if the furnace is modified such that emissions are minimized without the use of add-on pollution controls (called a furnace with modified processes), or if a furnace with modified processes is changed to a furnace without modified processes. If the facility performs such a modification, they are required to notify the Division 60 days before the change is scheduled to occur. The facility’s recent change to low-NO_x burners qualifies as such a change, and the Division has already received notice of the change. A condition will be added to require the facility to notify the Division of any such future modifications of the furnace.

The Primary Boiler (Source Code BL02) is subject to the following rules and regulations:

- Georgia Rule 391-3-1-.02(2)(d) - Fuel-burning Equipment. This rule limits the opacity to 20 percent, and limits the particulate matter and fly ash quantities in the emissions. Rule (b) is not applicable here, since Rule (d) is more restrictive.
- 40 CFR 60 Subpart Dc - Standards of Performance for Small Industrial-Commercial-Institutional Steam Generating Units. This boiler has over a 10 million BTU/hour rated heat input capacity and was installed after June 9, 1989. However, since the facility only burns natural gas and propane, the only requirement is to record and maintain amounts of each fuel combusted during the month (40 CFR 60.48 (g)).

D. Compliance Status

The facility has indicated compliance with all applicable rules and regulations.

E. Operational Flexibility

The facility has not requested operational flexibility.

F. Permit Conditions

Equipment Federal Rule Standards

Permit condition 3.3.1 subjects the Primary Boiler to the applicable requirements of 40 CFR 60 Subpart Dc – “Standards of Performance for Small Industrial-Commercial- Institutional Steam Generating Units” and was included in permit number 2819-121-12103, condition 10. No change was requested by the facility for this condition.

Permit condition 3.3.2 subjects the Furnace to the applicable requirements of 40 CFR 60 Subpart CC – “Standards of Performance for Glass Manufacturing Plants”. It was not included in a previous permit and is being included in this permit for further clarification of the applicable requirements.

Permit condition 3.3.3 requires that only natural gas and propane can be burned in the Furnace and Primary Boiler. This was a condition to satisfy the requirements of 40 CFR 40 Subpart Dc and was included in permit number 2819-121-12103, condition 13. No change was requested by the facility for this condition.

Equipment SIP Rule Standards

Permit condition 3.4.1 limits the opacity of the emissions to 40 percent from the Furnace. This is a requirement of Georgia Rule 391-3-1-.02(2)(b) - “Visible Emissions”, and was included in permit number 2819-121-12103, condition 12. No change was requested by the facility for this condition.

Permit condition 3.4.2 limits the fly ash and/or other particulate matter to the allowable rate from the Primary Boiler as determined by Georgia Rule 391-3-1-.02(2)(d) - “Fuel-burning Equipment.” This was included in permit number 2819-121-12103, condition 11a. No change was requested by the facility for this condition.

Permit condition 3.4.3 limits the opacity of the emission to 20 percent from the Primary Boiler. This is a requirement of Georgia Rule 391-3-1-.02(2)(d) - “Fuel-burning Equipment” and was included in permit number 2819-121-12103, condition 11b. No change was requested by the facility for this condition.

Permit condition 3.4.4 limits the particulate matter emissions from the Furnace to the allowable rate as determined by Georgia Rule 391-3-1-.02(2)(e) - “Particulate Emissions from Manufacturing Processes.” This was included in permit number 2819-121-12103, condition 3. No change was requested by the facility for this condition.

Equipment Standards Not Covered by a Federal or SIP Rule

None Applicable

IV. Testing Requirements (with Associated Record Keeping and Reporting)

A. General Testing Requirements

This permit specifies that a performance test may be required at any time upon request by the EPD to determine compliance with the emission limits contained in sections 2.0 and 3.0. The Permit does specify in condition 4.1.3 the applicable test method that would apply. A general condition to require notification of any test and for the submission of a test plan is included.

Permit condition 4.1.4 was included as a general testing requirement. It states that the Division may require additional emission tests if production rates increase more than 10 percent above the rates at which previous performance tests were made. This was a PSD avoidance condition included in permit number 2819-121-12103, condition 15. No change was requested by the facility for this condition.

B. Specific Testing Requirements

The facility has had widely varying results for past performance tests for nitrogen oxide emissions. See the table below for the last four nitrogen oxide emission test results.

NOx performance test results

Performance Test Date	Calculated Yearly NOx emissions (tons/year)
9/18/96	170.4
7/14/98	93.73
10/7/99	259.3
7/25/00	139.8

In a memo to Tony Cutrer dated October 11, 2000, Denis Kler recommended that the facility be required to conduct a nitrogen oxide performance test annually in order to demonstrate compliance with the emission limit of 191.6 tons/year. All four burners on the Furnace were replaced with low-NOx burners in 2000. The facility has been told that a continuous emissions monitor would be preferred, but the facility has to date resisted such effort.

Permit condition 4.2.1 requires an initial performance test for the Furnace (Source Code FR01) for nitrogen oxides emissions. Following the initial performance tests, testing for particulate matter emissions is required to be conducted annually. This is to prove compliance to the adjusted PSD Avoidance limit. It was not included in a previous permit and is being included in this permit for further clarification of the applicable requirements.

Permit conditions 4.2.2 and 4.2.3 outline the requirements for the facility to conduct an initial performance test for particulate emissions for the Furnace (Source Code FR01). During the testing, the Permittee shall measure and record the bridgewall temperature on the furnace, which will act as a surrogate for particulate matter. The measurement will be used to establish the maximum bridgewall temperature at which compliance is assured. Following the initial performance tests, testing for particulate matter emissions is required to be conducted at sixty (60) month intervals.

V. Monitoring Requirements (with Associated Record Keeping and Reporting)

A. General Monitoring Requirements

Permit condition 5.1.1 requires that all monitors be operated continuously except during breakdowns and repairs. Any repairs or maintenance should be completed in an expeditious manner so that downtime is minimized. All data should be recorded during any calibration activity to help verify that the calibration was performed and completed properly.

B. Specific Monitoring Requirements

The Primary Boiler (Source Code: BL02) is subject to 40 CFR 60 Subpart Dc as well as Georgia Rule (d) for particulate matter emissions and opacity. This boiler burns only natural gas and propane, which are clean-burning fuels with a relatively low ash content. Under normal operating conditions, these fuels exhibit very low opacity and particulate matter emissions. Consequently, no further monitoring is being specified for the primary boiler.

Emissions of particulate matter from the Furnace (Source Code: FR01) are governed by Georgia Rule (e) and opacity by Georgia Rule (b). Compliance with the Georgia Rule (e) particulate matter limitation can be achieved through proper operation of the furnace. A good indicator of proper furnace operation, which indicates that particulate matter emissions are being minimized, is the furnace bridgewall temperature (ref. Use of Electric Boost to Reduce Glass Furnace Emissions, R.J. Ryder of Brockway Glass Company, 1978). To assure compliance with Georgia Rule (e), the bridgewall temperature is required to be measured once per day that a furnace is operated and the trigger values for reporting excursions must be based upon the bridgewall temperatures measured during the most recent particulate matter emissions test done to comply with the permit. Monitoring bridgewall temperature will also serve to assure that the Opacity limit of 40 percent is not exceeded.

Permit condition 5.2.1 requires the facility to monitor the bridgewall temperature on a daily basis. This requirement was not included in a previous permit and is being included in this permit for further clarification of the applicable requirements.

General Comments

There appears to be no technically feasible method for periodic monitoring of the nitrogen oxide emissions from the boiler and furnace, short of requiring the facility to install and maintain a continuous emissions monitor (CEM) for nitrogen oxides. Since there is no regulatory basis (short of the direction under Georgia Rule 391-3-1-.02(2)(a)3) to require a CEM, it is not recommended at this time by the Division. However, this is an option that the Division has the right to pursue should the yearly nitrogen oxide performance tests show that the facility cannot demonstrate on-going compliance with the PSD avoidance limit in Condition 2.2.1. An option of monitoring furnace flame length as a surrogate for nitrogen oxide emissions was proposed; however, it is not clearly evident that this method is acceptable to provide reasonable assurance of compliance with the PSD avoidance limit in Condition 2.2.1. Therefore, the yearly nitrogen oxide performance test, the establishment of emission factors, records of hours of operation and fuel usage, and the calculation of both monthly and twelve consecutive month rolling totals of nitrogen oxide emissions is the method that the facility will utilize to provide reasonable assurance of compliance with the PSD avoidance limit in Condition 2.2.1.

VI. Other Record Keeping and Reporting Requirements**A. General Record Keeping and Reporting Requirements**

The Permit contains general requirements for the maintenance of all records for a period of five years following the date of entry and requires the prompt reporting of all related information to deviations from applicable requirements.

Records, including identification of any excess emissions, exceedances, or excursions from the applicable monitoring triggers, the cause of such occurrence, and the corrective action taken, are required to be kept by the Permittee and reporting is required on a semiannual basis. The reportable excess emissions, exceedances, and excursions are designated in Condition 6.1.7.

B. Specific Record Keeping and Reporting Requirements**1. Plant wide**

None applicable

2. Individual Equipment

Permit Condition 6.2.1 requires that the facility must maintain records of the average hourly process input rates for the sodium silicate production for each calendar day. This was a condition required to show compliance to the PSD avoidance limit and was included in permit number 2819-121-12103, condition 18. The remainder of condition 18 is covered by the definition of excursions in Permit Condition 6.1.7c. No change was requested by the facility for this condition.

Permit Condition 6.2.2 requires that the facility maintain records of the monthly hours of operation of the Furnace and Primary Boiler. This is a condition required to calculate the monthly nitrogen oxide emissions for the PSD avoidance limit as was included in permit number 2819-121-12103, condition 19. No change was requested by the facility for this condition.

Permit Condition 6.2.3 defines how the facility must calculate the monthly nitrogen oxide emissions from the Furnace using the information from Condition 6.2.1 and the most recent performance test results. Similarly, Permit Condition 6.2.4 defines how the facility must calculate the monthly nitrogen oxide emissions from the Primary Boiler using information from Condition 5.2.1 and the appropriate AP-42 nitrogen oxide emission factors from natural gas combustion. Permit Condition 6.2.5 requires the Permittee to calculate total monthly nitrogen oxide emissions from the entire facility and to notify the Division when emissions are above 15.9 tons per month. Permit Condition 6.2.6 requires the facility to calculate a twelve consecutive month rolling total for nitrogen oxides emissions for each month and to report this rolling total in each semiannual report. The facility must notify the Division if the emissions exceed 191.6 tons during any twelve consecutive months. These calculations are to show compliance with the PSD avoidance limit and were included (to some degree) in permit number 2819-121-12103, condition 21. No change was requested by the facility for this condition.

Permit Condition 6.2.7 requires the facility to notify the Division at least 60 days prior to changing the furnace from a furnace with modified processes to one without modified processes, or visa versa. This is the only applicable requirement from 40 CFR 60 Subpart CC §60.296(a). It was not included in a previous permit and is being included in this permit for further clarification of the applicable requirements.

Permit condition 6.2.8 requires that the facility maintain records of the monthly amount of fuel combusted in the Primary Boiler. This is a requirement as stated in 40 CFR 60.48 (g). This is a condition required to calculate the monthly nitrogen oxide emissions for the PSD avoidance limit and was included in permit number 2819-121-12103, conditions 10 and 20. No change was requested by the facility for this condition.

3. Equipment Groups

None Applicable

VII. Specific Requirements

A. Operational Flexibility

Not Applicable

B. Alternative Requirements

Not Applicable

C. Insignificant Activities

INSIGNIFICANT ACTIVITIES CHECKLIST

Category	Description of Insignificant Activity/Unit	Quantity
Mobile Sources	1. Cleaning and sweeping of streets and paved surfaces	
Combustion Equipment	1. Fire fighting and similar safety equipment used to train fire fighters or other emergency personnel.	
	2. Small incinerators that are not subject to any standard, limitation or other requirement under Section 111 or 112 (excluding 112(r)) of the Federal Act and are not considered a "designated facility" as specified in 40 CFR 60.32e of the Federal emissions guidelines for Hospital/Medical/Infectious Waste Incinerators, that are operating as follows: i) Less than 8 million BTU/hr heat input, firing types 0, 1, 2, and/or 3 waste. ii) Less than 8 million BTU/hr heat input with no more than 10% pathological (type 4) waste by weight combined with types 0, 1, 2, and/or 3 waste. iii) Less than 4 million BTU/hr heat input firing type 4 waste. (Refer to 391-3-1-.03(10)(g)2.(ii) for descriptions of waste types)	
	3. Open burning in compliance with Georgia Rule 391-3-1-.02 (5).	
	4. Stationary engines burning: i) Natural gas, LPG, gasoline, dual fuel, or diesel fuel which are used exclusively as emergency generators; ii) Natural gas, LPG, and/or diesel fueled generators used for emergency, peaking, and/or standby power generation, where the combined peaking and standby power generation do not exceed 200 hours per year. iii) Natural gas, LPG, and/or diesel fuel used for other purposes, provided that the output of each engine does not exceed 400 horsepower and that no individual engine operates for more than 2,000 hours per year. iv) Gasoline used for other purposes, provided that the output of each engine does not exceed 100 horsepower and that no individual engine operates for more than 500 hours per year.	
Trade Operations	1. Brazing, soldering, and welding equipment, and cutting torches related to manufacturing and construction activities whose emissions of hazardous air pollutants (HAPs) fall below 1,000 pounds per year.	2
Maintenance, Cleaning, and Housekeeping	1. Blast-cleaning equipment using a suspension of abrasive in water and any exhaust system (or collector) serving them exclusively.	
	2. Portable blast-cleaning equipment.	
	3. Non-Perchloroethylene Dry-cleaning equipment with a capacity of 100 pounds per hour or less of clothes.	
	4. Cold cleaners having an air/vapor interface of not more than 10 square feet and that do not use a halogenated solvent.	
	5. Non-routine clean out of tanks and equipment for the purposes of worker entry or in preparation for maintenance or decommissioning.	33
	6. Devices used exclusively for cleaning metal parts or surfaces by burning off residual amounts of paint, varnish, or other foreign material, provided that such devices are equipped with afterburners.	
	7. Cleaning operations: Alkaline phosphate cleaners and associated cleaners and burners.	
Laboratories and Testing	1. Laboratory fume hoods and vents associated with bench-scale laboratory equipment used for physical or chemical analysis.	1
	2. Research and development facilities, quality control testing facilities and/or small pilot projects, where combined daily emissions from all operations are not individually major or are support facilities not making significant contributions to the product of a collocated major manufacturing facility.	

INSIGNIFICANT ACTIVITIES CHECKLIST

Category	Description of Insignificant Activity/Unit	Quantity
Pollution Control	1. Sanitary waste water collection and treatment systems, except incineration equipment or equipment subject to any standard, limitation or other requirement under Section 111 or 112 (excluding 112(r)) of the Federal Act..	1
	2. On site soil or groundwater decontamination units that are not subject to any standard, limitation or other requirement under Section 111 or 112 (excluding 112(r)) of the Federal Act.	
	3. Bioremediation operations units that are not subject to any standard, limitation or other requirement under Section 111 or 112 (excluding 112(r)) of the Federal Act.	
	4. Landfills that are not subject to any standard, limitation or other requirement under Section 111 or 112 (excluding 112(r)) of the Federal Act.	
Industrial Operations	1. Concrete block and brick plants, concrete products plants, and ready mix concrete plants producing less than 125,000 tons per year.	
	2. Any of the following processes or process equipment which are electrically heated or which fire natural gas, LPG or distillate fuel oil at a maximum total heat input rate of not more than 5 million BTU's per hour: <ul style="list-style-type: none"> i) Furnaces for heat treating glass or metals, the use of which do not involve molten materials or oil-coated parts. ii) Porcelain enameling furnaces or porcelain enameling drying ovens. iii) Kilns for firing ceramic ware. iv) Crucible furnaces, pot furnaces, or induction melting and holding furnaces with a capacity of 1,000 pounds or less each, in which sweating or distilling is not conducted and in which fluxing is not conducted utilizing free chlorine, chloride or fluoride derivatives, or ammonium compounds. v) Bakery ovens and confection cookers. 	
	3. Carving, cutting, routing, turning, drilling, machining, sawing, surface grinding, sanding, planing, buffing, shot blasting, shot peening, or polishing; ceramics, glass, leather, metals, plastics, rubber, concrete, paper stock or wood, also including roll grinding and ground wood pulping stone sharpening, provided that: <ul style="list-style-type: none"> i) Activity is performed indoors; & ii) No significant fugitive particulate emissions enter the environment; & iii) No visible emissions enter the outdoor atmosphere. 	1
	4. Photographic process equipment by which an image is reproduced upon material sensitized to radiant energy (e.g., blueprint activity, photographic developing and microfiche).	
	5. Grain, food, or mineral extrusion processes	
	6. Equipment used exclusively for sintering of glass or metals, but not including equipment used for sintering metal-bearing ores, metal scale, clay, fly ash, or metal compounds.	
	7. Equipment for the mining and screening of uncrushed native sand and gravel.	
	8. Ozonization process or process equipment.	
	9. Electrostatic powder coating booths with an appropriately designed and operated particulate control system.	
	10. Activities involving the application of hot melt adhesives where VOC emissions are less than 5 tons per year and HAP emissions are less than 1,000 pounds per year.	
	11. Equipment used exclusively for the mixing and blending water-based adhesives and coatings at ambient temperatures.	
	12. Equipment used for compression, molding and injection of plastics where VOC emissions are less than 5 tons per year and HAP emissions are less than 1,000 pounds per year.	
	13. Ultraviolet curing processes where VOC emissions are less than 5 tons per year and HAP emissions are less than 1,000 pounds per year.	

INSIGNIFICANT ACTIVITIES CHECKLIST

Category	Description of Insignificant Activity/Unit	Quantity
Storage Tanks and Equipment	1. All petroleum liquid storage tanks storing a liquid with a true vapor pressure of equal to or less than 0.50 psia as stored.	

INSIGNIFICANT ACTIVITIES CHECKLIST

Category	Description of Insignificant Activity/Unit	Quantity
	2. All petroleum liquid storage tanks with a capacity of less than 40,000 gallons storing a liquid with a true vapor pressure of equal to or less than 2.0 psia as stored that are not subject to any standard, limitation or other requirement under Section 111 or 112 (excluding 112(r)) of the Federal Act.	
	3. All petroleum liquid storage tanks with a capacity of less than 10,000 gallons storing a petroleum liquid.	1
	4. All pressurized vessels designed to operate in excess of 30 psig storing petroleum fuels that are not subject to any standard, limitation or other requirement under Section 111 or 112 (excluding 112(r)) of the Federal Act.	3
	5. Gasoline storage and handling equipment at loading facilities handling less than 20,000 gallons per day or at vehicle dispensing facilities that are not subject to any standard, limitation or other requirement under Section 111 or 112 (excluding 112(r)) of the Federal Act.	
	6. Portable drums, barrels, and totes provided that the volume of each container does not exceed 550 gallons.	8
	7. All chemical storage tanks used to store a chemical with a true vapor pressure of less than or equal to 10 millimeters of mercury (0.19 psia).	

D. Temporary Sources

Not Applicable

E. Short-Term Activities

The facility had submitted Section 4.40 in their application indicating certain short-term activities. These were added to other lists. Welding was added to the Insignificant Activities Checklist under Trade Operations. Painting of storage tanks and offices was added to the Insignificant Activities Based on Emission Levels. Waste Heat Boiler I.D. tube cleaning was added to the Generic Emission Groups since only Georgia Rule (e) applied.

F. Compliance Schedule/Progress Reports

Not Applicable

G. Emissions Trading

Not Applicable

H. Acid Rain Requirements

Not Applicable

I. Prevention of Accidental Releases

The facility indicated that they keep propane at quantities above the threshold limit of 10,000 lbs.

J. Stratospheric Ozone Protection Requirements

The facility has indicated that they are subject to 40 CFR 82, Subpart F - "Recycling and Emissions Reduction" and 40 CFR 82, Subpart G - "Significant New Alternatives Policy Program".

K. Pollution Prevention

Not Applicable

L. Specific Conditions

Not Applicable

Addendum to Narrative

EPD issued draft Title V Permit 2819-245-0023-V-01-0 for Occidental Chemical – Augusta Silicate Plant in Augusta, Georgia on August 7, 2001. The public notice for this permit was published in *The Augusta Chronicle* on September 6, 2001. The public comment period expired October 6, 2001. Comments were received from Occidental Chemical on October 1, 2001; however, no comments were received from EPA. The comments are summarized below followed by a discussion of the comment and any changes made to the permit as a result. Proposed additions are underlined, and proposed deletions are in ~~strike through~~.

COMMENTS FROM THE FACILITY

1. Part 1.3 – Overall Facility Process Description

Comment: The second paragraph states that the facility has two support boilers. To clarify, the facility equipped with a single support boiler and a waste heat boiler. The waste heat boiler is equipped with a small auxiliary firing fuel burner. This burner has been out of service since 1997, but may be used in the future. As represented in the Title V application, the furnace and waste heat boiler are a single unit and the emissions associated with both units are ducted to a single stack. Also, the last sentence in this section states that the facility has a production rate of 200 tons per day. In actuality the current production rate is approximately 170 tons per day. It is requested that the text in Part 1.3 be modified to account for the information presented above.

Response: This clarification is noted. However, the production rate of 200 tpd will not be changed to 170 tpd as this was the information given by the facility in the permit application for the August 1997 modification.

2. Part 3.3 – Equipment Federal Rule Standards

Comment: In subpart 3.3.2, DNR references that 40 CFR 60 Subpart CC “Standards of Performance for Glass Manufacturing Plants” is applicable to the sodium silicate furnace. In February 2000, DNR questioned if our facility was actually a glass manufacturing facility or a chemical processing plant. Subsequent discussions with DNR staff indicated that our facility is indeed a chemical production facility.

This being the case, we question why DNR would classify our sodium silicate manufacturing process as a glass manufacturing facility. Furthermore, even if the facility was a glass manufacturing facility, it would not be subject to the NSPS since it was constructed prior to June 15, 1979, the date of the NSPS.

Accordingly, we respectfully request that the reference Part 3.3 be removed from the permit.

Response: The Division has reviewed the facility's request and has determined the sodium silicate furnace is subject to 40 CFR 60 NSPS CC. As stated in the original Title V Application Review, the furnace is subject to the rule since EPA did not define a “glass manufacturing plant” in the standard. The proposed rule (as shown in the June 15, 1979 Federal Register) shows both a definition for glass manufacturing plant and glass. However, the October 7, 1980 Federal Register shows that “the term ‘glass manufacturing plant’ was removed from Section 60.291 - Definitions of the regulation as it

was not needed”. Since that definition was removed, the facility is subject due to §60.290(a) - “Each glass melting furnace is an affected facility to which the provisions of this subpart apply.” The definition of glass melting furnace is given as “... a unit comprising a refractory vessel in which raw materials are charged, melted at high temperature, refined, and conditioned to product molten glass”. The facility’s furnace (Source Code FR01) meets these requirements.

In addition, while the furnace was constructed before the June 15, 1979 compliance date, the furnace has been modified, as defined in 40 CFR 60 Subpart A, in 1997. There was an increase in emissions due to the production increase. Therefore, the furnace is subject to 40 CFR 60 Subpart CC. No change to the permit will be made.

3. Part 3.4 Equipment SIP Rule Standards

Comment: Condition 3.4.1 states the Permittee shall not allow an opacity of greater than 40 percent from the furnace. In order to avoid confusion, the facility request the following word changes:

“Compliance with this condition shall be documented through once-per-day visual opacity surveys of the stack (Source Code STK1) associated with the Furnace (Source Code FR01) and Waste Heat Boiler (Source Code BL01). Documentation of opacity survey will be kept on site for review.”

Response: Monitoring bridgwall temperature serves to assure that the Opacity limit of 40 percent is not exceeded. No change will be made to the permit.

Comment: Condition 3.4.3 requires that visible emissions from the primary boiler (Source Code BL02) be below 20 percent. Again in order to avoid confusion with regards to the intent of this requirement, the facility request the following wording change:

“Compliance with this condition shall be documented through once-per-day visual opacity surveys of the stack (Source Code STK1) associated with the Primary Boiler (Source Code BL02). Documentation of opacity survey will be kept on site for review.”

Response: There is no monitoring specified for opacity from the boiler. Since the unit is natural gas and propane fired, the possibility of a violation of the opacity standard is minimal. No change will be made to the permit.

Comment: The facility does not believe a certified opacity reader is required to conduct such surveys. They would like EPD to confirm this in writing.

Response: Since there is no monitoring associated with the opacity limit for the boiler and a surrogate monitoring of bridgwall temperature for the furnace, there is no requirement for a certified opacity reader.

Comment: Condition 3.4.4 sets forth an emission limitation for particulate matter emissions associated with the Furnace (Source Code FR01). The facility believes the “P” term in the equation should be the rated capacity of the unit. The same equation appears in section 8.21.1. The facility request this change be made to both conditions.

Response: The equation in question is based on Georgia Rule 391-3-1-.02(2)(e) – Particulate Matter Emissions from Manufacturing Processes. “P” is intended to be the process input weight rate in tons per hour. It does not necessarily correspond to the rated capacity of the unit. It can vary with loading to the unit. Therefore, Condition 3.4.4 and 8.21.1 will remain unchanged.

4. Part 4.2 Specific Testing Requirements

Comment: Subpart 4.2.1 states, “Within 120 days of issuance of this permit, the Permittee shall conduct a performance test for the emissions of nitrogen oxides....”. The facility states they will not be running at full capacity due to market conditions. As such they request the testing be delayed until such time that they are running at full capacity. The same argument is made for condition 4.2.2 for particulate matter testing.

Response: The facility should test at normal operating rate. If at the time of testing normal operations are not full capacity, the facility should test at the current operating rate. When full capacity is reached, another test would have to be conducted.

Comment: Subpart 4.2.3 states the facility should measure and record the bridgewall temperature of the sodium silicate furnace during a performance test and then monitor the temperature with an optical pyrometer for compliance demonstration.

Specifically, the facility has asked for the following condition instead:

"During the initial performance testing required by Condition 4.2.2, the Permittee shall measure and record the amount of raw material fed to the Furnace (Source Code FR01). These measurements shall be used to establish the average batch-charging rate at which the furnace operates while demonstrating compliance with the particulate matter emission limit of Condition 4.4.4. Within thirty (30) days of completion of testing, the Permittee shall submit a report to the Division containing the emissions test results, batch charging rate measurement recorded during the testing, and the average batch-charging rate established. The value for the average batch-charging rate shall be used to develop a source specific emission factor to be used to demonstrate compliance with the emission limit contained in Condition 4.4.4.

Response: The sodium silicate furnace operation has been evaluated and the determination made that the breastwall of the facility's furnace is similar to the bridgewall of a glass container melting furnace. The Division disagrees with the company's claim that the breastwall temperature can not be accurately measured from the sodium silicate furnace. An accurate measurement of this temperature can be obtained with the optical pyrometer without the interference of flames if taken while the flow of the flames in the furnace is being reversed from side to side (from the east regenerator to the west regenerator and back). Therefore, the measurement of the breastwall temperature is a feasible surrogate parameter for PM emissions from a sodium silicate furnace.

The company's proposal to develop a PM emission factor based on the average batch charging rate during testing is not sufficient to account for all operations of the furnace. According to available technical literature on the manufacture of glass, the formation of PM emissions from the furnace occur when the raw materials volatilize in the melter and are, in

fact, dependant on furnace operating temperatures. More emphasis is given in the literature on the operating temperatures rather than the composition or process feed rate of the raw materials. For similar rates of raw materials fed into the furnace, temperatures in the furnace could be varied to account for fluctuations in furnace operation. These fluctuations could result in a change in PM emissions that would not be accounted for by the emission factor based on an average batch-charging rate. Therefore, monitoring of the breastwall temperature is a more adequate method to provide the Division a reasonable assurance of compliance for the PM emissions from the furnace.

Conditions 4.2.3 and 5.2.1 will be modified by replacing the references to the “bridgewall” with “breastwall”.

5. Part 5.2.1 Specific Monitoring Requirements

Comment: This condition requires the calibration, maintenance and operation of a monitoring device associated with the measurement of the bridgewall temperature. As mentioned in comment 4, the facility does not believe that the measurement of the bridgewall temperature is an appropriate method of estimating particulate matter emissions. Therefore, they ask for this condition to be removed.

Response: See response to comment above concerning condition 4.2.3.

6. Part 6.2.4 Specific Record Keeping and Reporting Requirements

Comment: This condition requires the facility to calculate the total monthly emissions of nitrogen oxides from the Primary Boiler (Source Code BL02) using data gathered under Condition 5.2.1. In referring to Condition 5.2.1, the facility is not required to keep any fuel records. Under Condition 6.2.8 the facility is required to maintain logs of the amount of fuel burned in the Primary Boiler. Additionally, the manner in which nitrogen oxide emissions are to be calculated is somewhat confusing. The facility believes the condition infers that the monthly fuel-firing rate should be multiplied by the appropriate nitrogen oxide emission factor to obtain a monthly nitrogen oxide emissions rate.

The facility request the following change to Condition 6.2.4

"The Permittee shall use the fuel records required by Condition 6.2.8 to calculate the total monthly emissions of nitrogen oxides from the Primary Boiler (Source Code BL02). The monthly nitrogen oxide emissions shall be calculated by multiplying the monthly fuel usage by the appropriate AP-42 nitrogen oxides emission factor from natural gas combustion. All calculations used to generate these records shall be maintained."

Response: The Division agrees that the reference to Condition 5.2.1 should be replaced with Condition 6.2.8. and the reference to the monthly hours of operation should be replaced with monthly fuel rate. The condition will reflect the wording proposed by the facility.

7. Part 8.18 Visible Emissions

Comment: The facility request to add the following statement to Condition 8.18.1:

"Compliance with this condition will be documented through once-per-day visual opacity surveys of the plant. Documentation of opacity surveys will be kept on site for review."

In addition the facility does not believe a certified opacity reader is necessary and would like the Divisions confirmation of this in writing.

Response: No change will be made to this condition. It is a general condition and is not meant to apply to a specific unit.

8. Part 8.19 Fuel-burning Equipment:

Comment: The facility does not believe that the provision contained in this portion of the permit pertains to the sodium silicate furnace/waste heat boiler. Provisions associated with emissions from this unit are contained elsewhere in the permit. The facility request the following statement be added to Condition 8.19:

“This condition pertains only to the Primary Boiler (Source Code BL02).”

Response: No change will be made to this condition. It is a general condition and is not meant to apply to a specific unit.

9. Attachment B Insignificant Activities Checklist

The laboratory fume hood identified in Attachment B has been removed.

Also under "Insignificant Activities Based on Emission Levels" the table should be changed as follows:

Description of Emissions Unit/ Activities	Quantity
Sodium Silicate storage tank	16
Caustic soda storage tank	2
Filtration tanks	3
Dissolver tanks	3
1500 kVA electric booster system on furnace	1
Painting storage tanks and office	As needed
Sodium silicate vent/adjusting tank	6
Nuisance dust baghouse	1

Response: Attachment B has been update with the above changes.

10. Generic Emission Groups

Comment: In section 4.40 of the Title V permit application, the facility originally represented the waste heat boiler tube ID cleaning would be undertaken once per week. The facility has asked that this be updated to 3 times per week. Emissions associated with the increased cleaning will be unchanged.

Response: Change in cleaning frequency has been noted. There is no change to the permit due to this comment.

ADDITIONAL CHANGES

1. Due to changes in the Title V Permit template since this permit was issued in draft format, Condition 8.2.1 was replaced by newer language.