

FINAL DRAFT/PROPOSED CAAPP PERMIT
PQ Corporation
I.D. No.: 097035ABN
Application No.: 98050013
April 18, 2002

217/782-2113

TITLE V - CLEAN AIR ACT PERMIT PROGRAM (CAAPP) PERMIT
and
TITLE I PERMIT¹

PERMITTEE

PQ Corporation
Attn: Rob Pickens, Plant Manager
1945 Delaney Road
Gurnee, Illinois 60031

Application No.: 98050013 I.D. No.: 097035ABN
Applicant's Designation: INDUSTINORGCHEMNEC Date Received: May 18, 1998
Operation of: Sodium Silicate Manufacturing Furnaces
Date Issued: TO BE DETERMINED Expiration Date²: DATE
Source Location: 1945 Delaney Road, Gurnee, Lake County
Responsible Official: Rob Pickens, Plant Manager

This permit is hereby granted to the above-designated Permittee to OPERATE emission sources and/or air pollution equipment consisting of sodium silicate manufacturing furnaces, a boiler and process emission sources to produce sodium silicate, pursuant to the above referenced permit application. This permit is subject to the conditions contained herein.

If you have any questions concerning this permit, please contact Sunil Suthar at 217/782-2113.

Donald E. Sutton, P.E.
Manager, Permit Section
Division of Air Pollution Control

DES:SIS:jar

cc: Illinois EPA, FOS, Region 1

¹ This permit may contain terms and conditions which address the applicability, and compliance if determined applicable, of Title I of the CAA and regulations

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promulgated thereunder, including 40 CFR 52.21 - federal PSD and 35 IAC Part 203 - Major Stationary Sources Construction and Modification. Any such terms and conditions are identified within this permit.

²

Except as provided in Condition 8.7 of this permit.

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1.0 SOURCE IDENTIFICATION

1.1 Source

PQ Corporation
1945 Delaney Road
Gurnee, Illinois 60031
847/662-8566

I.D. No.: 097035ABN
Standard Industrial Classification: 2819, Industrial Inorganic
Chemicals, NEC

1.2 Owner/Parent Company

PQ Corporation
P.O. Box 840
Valley Forge, Pennsylvania 19482-0840

1.3 Operator

PQ Corporation
1945 Delaney Road
Gurnee, Illinois 60031

Rob Pickens, Plant Manager
847/662-8566 Ext. 223

1.4 General Source Description

PQ Corporation is located at 1945 Delaney Road in Gurnee. The raw materials, sand and soda ash, are brought to the facility by rail car and/or truck. They are then conveyed to a storage silo that has separate storage bins for sand and soda ash via bucket elevators. From the storage silo the raw materials are conveyed and weighed to determine the proper ratio of sand and soda ash for the desired product. This plant usually runs "3.22" glass. This is the ratio of sand to soda ash in the pneumatic conveying system to the batch storage bin. Almost all of the transport of the raw materials and batch is enclosed, and the emissions are controlled by dust collectors. The refractory brick furnace is charged from the batch storage bin via a batch conveyor and feed chute. The batch is wetted in the batch conveyor prior to charging the furnace to minimize particulate emissions. Once the material is in the furnace the heat fuses the sand and soda ash in the furnace

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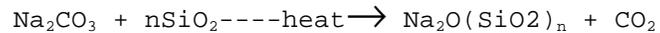
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at a bout 1300 degrees C (2372 degrees F). The reaction formula is as follows:



As the molten product leaves the furnace through the draw, it is poured onto the open chain molding conveyor. While on the conveyor it cools to form solid sodium silicate. Most of the product is transferred to the dissolver feed hopper but occasionally some glass is stored on the floor for shipment off-site. The solid sodium silicate in the dissolver feed hopper is transferred to the dissolver where it is converted to liquid sodium silicate using steam. Caustic is occasionally added to the product to adjust the final ratio. The final liquid product is placed in storage tanks until it is shipped off-site via rail cars and/or trucks.

2.0 LIST OF ABBREVIATIONS/ACRONYMS USED IN THIS PERMIT

ACMA	Alternative Compliance Market Account
Act	Illinois Environmental Protection Act [415 ILCS 5/1 et seq.]
AP-42	Compilation of Air Pollutant Emission Factors, Volume 1, Stationary Point and Other Sources (and Supplements A through F), USEPA, Office of Air Quality Planning and Standards, Research Triangle Park, NC 27711
ATU	Allotment Trading Unit
BACT	Best Available Control Technology
Btu	British thermal unit
CAA	Clean Air Act [42 U.S.C. Section 7401 et seq.]
CAAPP	Clean Air Act Permit Program
CAM	Compliance Assurance Monitoring
CEMS	Continuous Emissions Monitoring System
CFR	Code of Federal Regulations
CO	Carbon Monoxide
ERMS	Emissions Reduction Market System
ft ³	Cubic feet
gal	gallon
HAP	Hazardous Air Pollutant
hr	hour
IAC	Illinois Administrative Code
I.D. No.	Identification Number of Source, assigned by Illinois EPA
ILCS	Illinois Compiled Statutes
Illinois EPA	Illinois Environmental Protection Agency
j	joule
kg	kilogram
kW	kilowatts
LAER	Lowest Achievable Emission Rate
lb	pound
MACT	Maximum Achievable Control Technology
MBtu	Million British thermal units
Mft ³	Million cubic feet
min	minute
mmBtu	Million British thermal units
MW	Megawatt
NESHAP	National Emission Standards for Hazardous Air Pollutants
:g	nanogram
NO _x	Nitrogen Oxides
NSPS	New Source Performance Standards
PM	Particulate Matter
PM ₁₀	Particulate matter with an aerodynamic diameter less than or equal to a nominal 10 microns as measured by applicable test

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	or monitoring methods
ppm	parts per million
PSD	Prevention of Significant Deterioration
RMP	Risk Management Plan
scf	Standard cubic feet
scfm	Standard cubic feet per meter
SO ₂	Sulfur Dioxide
TOC	Total organic compound
T1	Title I - identifies Title I conditions that have been carried over from an existing permit
T1N	Title I New - identifies Title I conditions that are being established in this permit
T1R	Title I Revised - identifies Title I conditions that have been carried over from an existing permit and subsequently revised in this permit
USEPA	United States Environmental Protection Agency
yr	year
VOM	Volatile Organic Material

3.0 INSIGNIFICANT ACTIVITIES

3.1 Identification of Insignificant Activities

The following activities at the source constitute insignificant activities as specified in 35 IAC 201.210:

- 3.1.1 Activities determined by the Illinois EPA to be insignificant activities, pursuant to 35 IAC 201.210(a)(1) and 201.211, as follows:

None

- 3.1.2 Activities that are insignificant activities based upon maximum emissions, pursuant to 35 IAC 201.210(a)(2) or (a)(3), as follows:

Solid Material discharge/transfer points not included in emission units

Liquid material discharge/transfer points not included in emission units (including strong water tank)

- 3.1.3 Activities that are insignificant activities based upon their type or character, pursuant to 35 IAC 201.210(a)(4) through (18), as follows:

Direct combustion units designed and used for comfort heating purposes and fuel combustion emission units as follows: (A) Units with a rated heat input capacity of less than 2.5 mmBtu/hr that fire only natural gas, propane, or liquefied petroleum gas; (B) Units with a rated heat input capacity of less than 1.0 mmBtu/hr that fire only oil or oil in combination with only natural gas, propane, or liquefied petroleum gas; and (C) Units with a rated heat input capacity of less than 200,000 Btu/hr which never burn refuse, or treated or chemically contaminated wood [35 IAC 201.210(a)(4)].

Equipment used for filling drums, pails, or other packaging containers, excluding aerosol cans, with soaps, detergents, surfactants, lubricating oils, waxes, vegetable oils, greases, animal fats, glycerin, sweeteners, corn syrup, aqueous salt

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solutions, or aqueous caustic solutions [35 IAC 201.210(a)(8)].

Storage tanks of any size containing virgin or re-refined distillate oil, hydrocarbon condensate from natural gas pipeline or storage systems, lubricating oil, or residual fuel oils [35 IAC 201.210(a)(11)].

Gas turbines and stationary reciprocating internal combustion engines of less than 112 kW (150 horsepower) power output [35 IAC 201.210(a)(15)].

Gas turbines and stationary reciprocating internal combustion engines of between 112 kW and 1,118 kW (150 and 1,500 horsepower) power output that are emergency or standby units [35 IAC 201.210(a)(16)].

Storage tanks of any size containing exclusively soaps, detergents, surfactants, glycerin, waxes, vegetable oils, greases, animal fats, sweeteners, corn syrup, aqueous salt solutions, or aqueous caustic solutions, provided an organic solvent has not been mixed with such materials [35 IAC 201.210(a)(17)].

Loading and unloading systems for railcars, tank trucks, or watercraft that handle only the following liquid materials, provided an organic solvent has not been mixed with such materials: soaps, detergents, surfactants, lubricating oils, waxes, glycerin, vegetable oils, greases, animal fats, sweetener, corn syrup, aqueous salt solutions, or aqueous caustic solutions [35 IAC 201.210(a)(18)].

3.1.4 Activities that are considered insignificant activities pursuant to 35 IAC 201.210(b).

3.2 Compliance with Applicable Requirements

Insignificant activities are subject to applicable requirements notwithstanding status as insignificant activities. In particular, in addition to regulations of general applicability, such as 35 IAC 212.301 and 212.123 (Condition 5.2.2), the Permittee shall comply with the following requirements, as applicable:

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- 3.2.1 For each cold cleaning degreaser, the Permittee shall comply with the applicable equipment and operating requirements of 35 IAC 215.182, 218.182, or 219.182.
 - 3.2.2 For each particulate matter process emission unit, the Permittee shall comply with the applicable particulate matter emission limit of 35 IAC 212.321 or 212.322. For example, the particulate matter emissions from a process emission unit shall not exceed 0.55 pounds per hour if the emission unit's process weight rate is 100 pounds per hour or less, pursuant to 35 IAC 266.110.
 - 3.2.3 For each organic material emission unit that uses organic material, e.g., a mixer or printing line, the Permittee shall comply with the applicable VOM emission limit of 35 IAC 215.301, 218.301, or 219.301, which requires that organic material emissions not exceed 8.0 pounds per hour or do not qualify as photochemically reactive material as defined in 35 IAC 211.4690.
- 3.3 Addition of Insignificant Activities
- 3.3.1 The Permittee is not required to notify the Illinois EPA of additional insignificant activities present at the source of a type that is identified in Condition 3.1, until the renewal application for this permit is submitted, pursuant to 35 IAC 201.212(a).
 - 3.3.2 The Permittee must notify the Illinois EPA of any proposed addition of a new insignificant activity of a type addressed by 35 IAC 201.210(a) and 201.211 other than those identified in Condition 3.1, pursuant to Section 39.5(12)(b) of the Act.
 - 3.3.3 The Permittee is not required to notify the Illinois EPA of additional insignificant activities present at the source of a type identified in 35 IAC 201.210(b).

4.0 SIGNIFICANT EMISSION UNITS AT THIS SOURCE

Emission Unit	Description	Date Constructed	Emission Control Equipment
01	Sodium Silicate Manufacturing Furnaces	Furnace 1: 5/65 5/97* Furnace 2: 5/67 5/00*	Low NO _x Burner/Low Excess Air Operating (BACT)
02	Boiler	4/97	None
03	Process Emission Source:		Dust Collectors
	Batch Movement	5/97	F-101
	Raw Material Unloading	5/97	F-102
	Batch Dense Phase	5/97	F-201
	SSS Recycling	9/98	F-302
	Chain Conveyor	5/97	F-301
	SSS Loading	2/99	F-1202
04	Fugitive Particulate Emissions: Sand/Ash Unloading From Trucks	----	None

* Restructuring of existing glass furnaces to sodium silicate producing furnaces.

5.0 OVERALL SOURCE CONDITIONS

5.1 Source Description

5.1.1 This permit is issued based on the source requiring a CAAPP permit as a major source of NO_x emissions.

5.1.2 This permit is issued based on the source not being a major source of HAPs.

5.2 Applicable Regulations

5.2.1 Specific emission units at this source are subject to particular regulations as set forth in Section 7 (Unit-Specific Conditions) of this permit.

5.2.2 In addition, emission units at this source are subject to the following regulations of general applicability:

- a. No person shall cause or allow the emission of fugitive particulate matter from any process, including any material handling or storage activity, that is visible by an observer looking generally overhead at a point beyond the property line of the source unless the wind speed is greater than 40.2 kilometers per hour (25 miles per hour), pursuant to 35 IAC 212.301 and 212.314.

Compliance with this requirement is considered to be assured by the inherent nature of operations at this source, as demonstrated by historical operation.

- b. No person shall cause or allow the emission of smoke or other particulate matter, with an opacity greater than 30 percent, into the atmosphere from any emission unit other than those emission units subject to the requirements of 35 IAC 212.122, pursuant to 35 IAC 212.123(a), except as allowed by 35 IAC 212.123(b) and 212.124.

5.2.3 Ozone Depleting Substances

The Permittee shall comply with the standards for recycling and emissions reduction of ozone depleting substances pursuant to 40 CFR Part 82, Subpart F, except

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as provided for motor vehicle air conditioners in Subpart B of 40 CFR Part 82:

- a. Persons opening appliances for maintenance, service, repair, or disposal must comply with the required practices pursuant to 40 CFR 82.156.
- b. Equipment used during the maintenance, service, repair, or disposal of appliances must comply with the standards for recycling and recovery equipment pursuant to 40 CFR 82.158.
- c. Persons performing maintenance, service, repair, or disposal of appliances must be certified by an approved technician certification program pursuant to 40 CFR 82.161.

5.2.4 Risk Management Plan

Should this stationary source, as defined in 40 CFR Section 68.3, become subject to the Accidental Release Prevention regulations in 40 CFR Part 68, then the owner or operator shall submit [40 CFR 68.215(a)(2)(i) and (ii)]:

- a. A compliance schedule for meeting the requirements of 40 CFR Part 68 by the date provided in 40 CFR 68.10(a); or
- b. A certification statement that the source is in compliance with all requirements of 40 CFR Part 68, including the registration and submission of the Risk Management Plan (RMP), as part of the annual compliance certification required by 40 CFR Part 70 or 71.

- 5.2.5 a. Should this stationary source become subject to a regulation under 40 CFR Parts 60, 61, or 63, or 35 IAC after the date issued of this permit, then the owner or operator shall, in accordance with the applicable regulation(s), comply with the applicable requirements by the date(s) specified and shall certify compliance with the applicable requirements of such regulation(s) as part of the annual compliance certification, as required by 40 CFR Part 70 or 71.

- b. No later than upon the submittal for renewal of this permit, the owner or operator shall submit, as part of an application, the necessary information to address either the non-applicability of, or demonstrate compliance with all applicable requirements of any potentially applicable regulation which was promulgated after the date issued of this permit.

5.2.6 Episode Action Plan

- a. If the source is required to have an episode action plan pursuant to 35 IAC 244.142, the Permittee shall maintain at the source and have on file with the Illinois EPA a written episode action plan (plan) for reducing the levels of emissions during yellow alerts, red alerts, and emergencies, consistent with safe operating procedures. The plan shall contain the information specified in 35 IAC 244.144.
- b. The Permittee shall immediately implement the appropriate steps described in this plan should an air pollution alert or emergency be declared.
- c. If a change occurs at the source which requires a revision of the plan (e.g., operational change, change in the source contact person), a copy of the revised plan shall be submitted to the Illinois EPA for review within 30 days of the change. Such plans shall be further revised if disapproved by the Illinois EPA.
- d. For sources required to have a plan pursuant to 35 IAC 244.142, a copy of the original plan and any subsequent revisions shall be sent to:
 - i. Illinois EPA, Compliance Section; and
 - ii. For sources located in Cook County and outside of the city of Chicago: Cook County Department of Environmental Control; or
 - iii. For sources located within the city of Chicago: Chicago Department of Environmental Control.

5.2.9 CAM Plan

This stationary source has a pollutant-specific emissions unit that is subject to 40 CFR Part 64, Compliance Assurance Monitoring (CAM) for Major Stationary Sources. As a result of this application either not having been submitted or deemed complete by April 20, 1998, the source is required to comply with the requirements of 40 CFR Part 64 for large pollutant-specific emissions units in the initial application and CAAPP permit. The source must submit a CAM plan for all other affected pollutant-specific emissions units upon application for renewal of the initial CAAPP permit, or upon a significant modification to the CAAPP permit for the construction or modification of a large pollutant-specific emissions unit which has the potential post-control device emissions of the applicable regulated air pollutant that equals or exceeds major source threshold levels.

5.3 Non-Applicability of Regulations of Concern

None

5.4 Source-Wide Operational and Production Limits and Work Practices

In addition to the source-wide requirements in the Standard Permit Conditions in Section 9, the Permittee shall fulfill the following source-wide operational and production limitations and/or work practice requirements:

None

5.5 Source-Wide Emission Limitations

5.5.1 Permitted Emissions for Fees

The annual emissions from the source, not considering insignificant activities as addressed by Section 3.0 of this permit, shall not exceed the following limitations. The overall source emissions shall be determined by adding emissions from all emission units. Compliance with these limits shall be determined on a calendar year basis. These limitations (Condition 5.5.1) are set for the purpose of establishing fees and are not federally enforceable.

Permitted Emissions of Regulated Pollutants

Pollutant	Tons/Year
Volatile Organic Material (VOM)	----
Sulfur Dioxide (SO ₂)	39.9
Particulate Matter (PM)	87.1
Nitrogen Oxides (NO _x)	558.0
HAP, not included in VOM or PM	----
Total	685.0

5.5.2 Emissions of Hazardous Air Pollutants

This permit is issued based on the emissions of HAPs as listed in Section 112(b) of the CAA not being equal to or exceeding 10 tons per year of a single HAP or 25 tons per year of any combination of such HAPs, so that this source is considered a minor source for HAPs.

5.5.3 Other Source-Wide Emission Limitations

Other source-wide emission limitations are not set for this source pursuant to either the federal rules for Prevention of Significant Deterioration (PSD), 40 CFR 52.21, Illinois EPA rules for Major Stationary Sources Construction and Modification, 35 IAC Part 203, or Section 502(b)(10) of the CAA. However, there may be unit specific emission limitations set forth in Section 7 of this permit pursuant to these rules.

5.6 General Recordkeeping Requirements

5.6.1 Emission Records

The Permittee shall maintain records of the following items for the source to demonstrate compliance with Condition 5.5.1, pursuant to Section 39.5(7)(b) of the Act:

Total annual emissions on a calendar year basis for the emission units covered by Section 7 (Unit Specific Conditions) of this permit.

5.6.2 Records for Operating Scenarios

N/A

5.6.3 Retention and Availability of Records

- a. All records and logs required by this permit shall be retained for at least five years from the date of entry (unless a longer retention period is specified by the particular recordkeeping provision herein), shall be kept at a location at the source that is readily accessible to the Illinois EPA or USEPA, and shall be made available for inspection and copying by the Illinois EPA or USEPA upon request.
- b. The Permittee shall retrieve and print, on paper during normal source office hours, any records retained in an electronic format (e.g., computer) in response to an Illinois EPA or USEPA request for records during the course of a source inspection.

5.7 General Reporting Requirements

5.7.1 General Source-Wide Reporting Requirements

The Permittee shall promptly notify the Illinois EPA, Compliance Section, of deviations of the source with the permit requirements as follows, pursuant to Section 39.5(7)(f)(ii) of the Act. Reports shall describe the probable cause of such deviations, and any corrective actions or preventive measures taken.

5.7.2 Annual Emissions Report

The annual emissions report required pursuant to Condition 9.7 shall contain emissions information for the previous calendar year.

5.8 General Operational Flexibility/Anticipated Operating Scenarios

N/A

5.9 General Compliance Procedures

5.9.1 General Procedures for Calculating Emissions

Compliance with the source-wide emission limits specified in Condition 5.5 shall be based on the recordkeeping and reporting requirements of Conditions 5.6 and 5.7, and

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compliance procedures in Section 7 (Unit Specific
Conditions) of this permit.

6.0 EMISSIONS REDUCTION MARKET SYSTEM (ERMS)

6.1 Description of ERMS

The ERMS is a "cap and trade" market system for major stationary sources located in the Chicago ozone nonattainment area. It is designed to reduce VOM emissions from stationary sources to contribute to reasonable further progress toward attainment, as required by Section 182(c) of the CAA.

The ERMS addresses VOM emissions during a seasonal allotment period from May 1 through September 30. Participating sources must hold "allotment trading units" (ATUs) for their actual seasonal VOM emissions. Each year participating sources are issued ATUs based on allotments set in the sources' CAAPP permits. These allotments are established from historical VOM emissions or "baseline emissions" lowered to provide the emissions reductions from stationary sources required for reasonable further progress.

By December 31 of each year, the end of the reconciliation period following the seasonal allotment period, each source should have sufficient ATUs in its transaction account to cover its actual VOM emissions during the preceding season. A transaction account's balance as of December 31 will include any valid ATU transfer agreements entered into as of December 31 of the given year, provided such agreements are promptly submitted to the Illinois EPA for entry into the transaction account database. The Illinois EPA will then retire ATUs in sources' transaction accounts in amounts equivalent to their seasonal emissions. When a source does not appear to have sufficient ATUs in its transaction account, the Illinois EPA will issue a notice to the source to begin the process for Emissions Excursion Compensation.

In addition to receiving ATUs pursuant to their allotments, participating sources may also obtain ATUs from the market, including ATUs bought from other participating sources and general participants in the ERMS that hold ATUs (35 IAC 205.630) and ATUs issued by the Illinois EPA as a consequence of VOM emissions reductions from an Emissions Reduction Generator or an Intersector Transaction (35 IAC 205.500 and 35 IAC 205.510). During the reconciliation period, sources may also buy ATUs from a secondary reserve of ATUs managed by the Illinois EPA, the "Alternative Compliance Market Account" (ACMA) (35 IAC 205.710). Sources may also transfer or sell the ATUs that they hold to other sources or participants (35 IAC 205.630).

6.2 Applicability

This permit is issued based on this source not being a participating source in the Emissions Reduction Market System (ERMS), 35 IAC Part 205, pursuant to 35 IAC 205.200. This is based on the source's actual VOM emissions during the seasonal allotment period from May 1 through September 30 of each year being less than 10 tons and the source's baseline emissions also being less than 10 tons.

6.3 Recordkeeping and Reporting

- a. The Permittee shall maintain the following records to allow the confirmation of actual VOM emissions during the seasonal allotment period:
 - i. Records of operating data and other information for each individual emission unit or group of related emission units at the source, as specified in Sections 5 and 7 of this permit, as appropriate, to determine actual VOM emissions during the seasonal allotment period;
 - ii. Records of the VOM emissions, in tons, during the seasonal allotment period, with supporting calculations, for each individual emission unit or group of related emission units at the source, determined in accordance with the procedures specified in Sections 5 and 7 of this permit; and
 - iii. Total VOM emissions from the source, in tons, during each seasonal allotment period, which shall be compiled by November 30 of each year.
- b. In the event that the source's VOM emissions during the seasonal allotment period equal or exceed 10 tons, the source shall become a participating source in the ERMS and beginning with the following seasonal allotment period, shall comply with 35 IAC Part 205, by holding allotment trading units (ATUs) for its VOM emissions during each seasonal allotment period, unless the source obtains exemption from the ERMS by operating with seasonal VOM emissions of no more than 15 tons pursuant to a limitation applied for and established in its CAAPP permit.

6.4 Federal Enforceability

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Section 6.0 becomes federally enforceable upon approval of the
ERMS by USEPA as part of Illinois' State Implementation Plan.

7.0 UNIT SPECIFIC CONDITIONS

7.1 Unit 01: Sodium Silicate Manufacturing Furnaces
Control: Low NO_x Burner/Low Excess Air Operating(BACT)

7.1.1 Description

The sodium silicate manufacturing furnaces consists of two furnaces, both which produce solid sodium silicate, using sand and soda ash as raw materials. The batch (pre-weighed amounts of sand and soda ash) is continuously fed through a charger. The furnaces are regenerative type. The # 1 Furnace is a deep bed 684 ft² Furnace with two two-pass regenerators, combustion system for gas and oil, and a discharge reversal valve system and stack. Batch is continuously discharged from the hopper through a Batch Wetter and Charger. The wetter is a mixing device which serves to add 3-6% water to the batch to reduce dusting and emissions from the furnace. The charger is a mechanical feeder which introduces the batch evenly into the furnace. The furnace is fired by six sealed-in burners. Combustion in the furnace is accomplished by a reversal system. In one cycle, firing is through the three north port burners, with the flue gases exiting through the south regenerator, preheating it, and exiting to the atmosphere through the stack. When the cycle is complete, the reversal valve switches and firing is through the south port burners, with flue gases passing through the north regenerator. The combustion system consists of a natural gas manifold, with an oil back-up manifold. Combustion air is supplied to the burners from two combustion air fans in parallel. High pressure air is supplied to the burners for purge and tip-cooling air. Combustion in the furnace is accomplished by a reversal system. Sand and soda ash fuses in the furnace and molten sodium silicate discharges from the furnace at the draw

7.1.2 List of Emission Units and Air Pollution Control Equipment

Emission Unit	Description	Date Constructed/Modified	Emission Control Equipment

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I.D. No.: 097035ABN
Application No.: 98050013
April 18, 2002

Emission Unit	Description	Date Constructed/Modified	Emission Control Equipment
Sodium Silicate Furnace #1	Regenerative Furnace, Natural Gas Fired (Fuel Oil #2, #4, and #6 Backup) Maximum Heat Input Capacity: 57.5 MBtu/hr	5/65 5/97*	Low NO _x Burner/Low Excess Air Operating (BACT)
Sodium Silicate Furnace #2	Regenerative Furnace Natural Gas Fired (Fuel Oil #2, #4, and #6 Backup) Maximum Heat Input Capacity: 57.5 MBtu/hr	5/65 5/00*	Low NO _x Burner/Low Excess Air Operating (BACT)

* Restructuring of existing glass furnaces to sodium silicate producing furnaces.

7.1.3 Applicability Provisions and Applicable Regulations

- a. The "affected sodium silicate manufacturing furnaces" for the purpose of these unit-specific conditions, are the emission units described in section 7.1.1 and 7.1.2.
- b. The affected sodium silicate manufacturing furnaces are subject to 35 IAC 212.321, which provides that:

No person shall cause or allow the emission of particulate matter into the atmosphere in any one hour period from any new process emission unit for which, either alone or in combination with the emission of particulate matter from all other similar process emission units for which construction or modification commenced on or after April 14, 1972, which, at a source or premises, exceeds the allowable emission rates specified in subsection (c) of this section (See Attachment 2) [35 IAC 212.321(a)].

- c. No person shall cause or allow the emission of sulfur dioxide into the atmosphere from any process emission sources [35 IAC 214.301].

7.1.4 Non-Applicability of Regulations of Concern

The affected sodium silicate manufacturing furnaces are not subject to 40 CFR 60, Subpart CC, Standards of Performance for Glass Manufacturers. The affected sodium silicate manufacturing furnaces produce sodium silicate by the fusion of Silica or Sand with Soda Ash at very high temperatures. Sodium Silicate is available in Glass, anhydrous and hydrated grades. They are water soluble and are also available as aqueous solution. These are known as Water Glass while the more siliceous sodium silicates are Glasses. Subpart CC addresses Container Glass (glass made of soda-lime recipe), Pressed or Blown Glass, Flat Glass (glass made of soda-lime recipe and produced into continuous flat sheets), and Wool Fiberglass (fibrous glass of random texture, including fiberglass insulation, and other products listed in SIC 3296). The subpart does not address the production of sodium silicate.

7.1.5 Control Requirements

The furnaces shall be equipped with low NO_x burners and low excess air operation technology.

This condition represents the application of the Best Available Control Technology (BACT) for the source as required by Section 165 of the Clean Air Act.

7.1.6 Emission Limitations

In addition to Condition 5.2.2 and the source wide emission limitations in Condition 5.5, the affected sodium silicate manufacturing furnaces are subject to the following:

- a. Emissions of the furnaces shall not exceed 6.0 pounds of NO_x per ton of sodium silicate produced. Compliance with this limit shall be determined by monitoring in accordance with Condition 7.1.8(a).

- b. Emissions from the affected sodium silicate manufacturing furnaces shall not exceed the following limits.

Table I: Furnace Emission Limits

<u>Pollutant</u>	<u>Furnace 1 (Lb/Hour)</u>	<u>Furnace 2 (Lb/Hr)</u>	<u>Furnace 1 (T/Yr)</u>	<u>Furnace 2 (T/Yr)</u>	<u>Total (T/Yr)</u>
NO _x *	60.0	65.0	262.8	284.7	547.5
PM	9.43	7.5	41.3	32.9	74.2
CO	3.5	3.7	15.3	16.2	31.5

* Hourly limits shall be determined on a block 24-hour averaging basis.

- c. The affected sodium silicate manufacturing furnaces burning Residual or Distillate Fuel oil shall not exceed the following usage rates and combined emission limits for SO₂:

Table II: Sulfur Dioxide (SO₂) Emissions from
Furnace 1 and 2 and Boiler**

<u>Fuel</u>	<u>Maximum Usage Rate* (Gal/Yr)</u>	<u>Max. Sulfur Content (Wt. %)</u>	<u>Combined SO₂ Emissions* (Lb/Gal)(T/Yr)</u>
Residual Oil	264,177	0.5	0.4 ---
Distillate Oil	1,996,031	0.28	0.02 ---
			Total: 39.9

* Predicted usage rates of fuel oil are unspecified at this time; however limits on maximum usage have been provided so as to limit the combined emissions of SO₂ to 39.9 tons/year.

** Boiler as described in 7.2.

Compliance with annual limits shall be determined on a monthly basis from the sum of the data for the current month plus the preceding 11 months (running 12 month total) [T1].

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The above limitations were established in Permit 96010005, pursuant to 40 CFR 52.21, Prevention of Significant Deterioration (PSD). The Illinois Environmental Protection Agency finds that the application fulfills all applicable requirements of 40 CFR 52.21. This approval is issued pursuant to the Clean Air Act, as amended, 40 U.S.C. 7401, the Federal regulations promulgated thereunder at 40 CFR 52.21 for Prevention of Significant Deterioration of Air Quality (PSD), and a Delegation of Authority agreement between the United States Environmental Protection Agency (USEPA) and the Illinois EPA for the administration of the PSD program. This approval becomes effective in accordance with the provisions of 40 CFR 124.15 and may be appealed in accordance with the provisions of 40 CFR 124.19. Also see Attachment 1 for "netting" details that include this unit. [T1]

7.1.7 Operating Requirements

- a. The Permittee shall not keep, store, or utilize at the plant other liquid fuels, e.g., distillate fuel oil, with a sulfur content greater than the larger of the following two values:
 - i. 0.28 weight percent, or
 - ii. The wt. percent given by the formula: Maximum wt. percent sulfur = $(0.000015) \times (\text{Gross heating value of oil, Btu/lb})$.
- b. Organic liquid by-products or waste materials shall not be used as fuel at the plant without written approval from the Illinois EPA.
- c. The Illinois EPA shall be allowed to sample all fuels stored at the plant.

7.1.8 Monitoring Requirements

- a. The Permittee shall operate, calibrate and maintain a continuous emissions monitoring system (CEMS) to measure NO_x emission from the furnaces. The monitor shall determine NO_x emissions in lb/hr, to determine a block 24-hour average. This monitoring requirement

for sodium silicate furnaces is pursuant to 35 IAC 201.281.

- b. The Permittee shall install and operate meters to measure and record fuel consumption by each furnace. This monitoring requirement for sodium silicate furnaces is pursuant to 35 IAC 201.281.

7.1.9 Recordkeeping Requirements

In addition to the records required by Condition 5.6, the Permittee shall maintain records of the following items for affected sodium silicate manufacturing furnaces to demonstrate compliance with 7.1.6, and 5.5.1, pursuant to Section 39.5(7)(b) of the Act:

- a. The Permittee shall maintain records of the amount of sodium silicate produced on a daily basis.
- b. Hours of operation of the affected sodium silicate manufacturing furnaces.
- c. Annual aggregate PM, CO, and SO₂ emissions from affected sodium silicate manufacturing furnaces, based on emission rates and fuel usage with supporting calculations.
- d. The Permittee shall maintain records of the following items:
 - i. Total fuel usage for affected sodium silicate manufacturing furnaces (gal/day);
 - ii. The Permittee shall maintain a shipping receipt from the fuel supplier for each shipment of distillate or residual oil delivered. The shipping receipt must indicate the location of the oil when a sample was drawn for analysis and must include the results of that analysis.

7.1.10 Reporting Requirements

The Permittee shall promptly notify the Illinois EPA, Compliance Section, of deviations of affected sodium silicate manufacturing furnaces with the permit

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requirements as follows, pursuant to Section 39.5(7)(f)(ii) of the Act. Reports shall describe the probable cause of such deviations, and any corrective actions or preventive measures taken:

- a. The Permittee shall notify the Illinois EPA in writing within 30 days of firing any gaseous fuel other than natural gas in the furnaces.
- b. The Permittee shall submit a written report of all excess emissions from the furnaces to the Illinois EPA for every calendar quarter.

The report shall include the following:

- i. The magnitude of excess emissions conversion factor(s) used, and the date and time of commencement and completion of each time period of excess emissions.
 - ii. The date and time identifying each period during which the continuous monitoring system was inoperative except for zero and span checks and the nature of the system repairs or adjustments.
 - iii. When no excess emissions have occurred or the continuous monitoring system has not been inoperative, repaired, or adjusted, such information shall be stated in the report.
 - iv. Excess emissions indicated by the CEM system shall be considered violations of the applicable emission limit for the purpose of this permit, unless such excess emissions are related to initial shakedown and testing of each furnace, or are otherwise excused by regulation or other permitting conditions.
- c. If no excess emissions occur in a particular quarter, then a semiannual report is required stating that no excess emissions occurred during the reporting period.
 - d. With the Annual Emission Statement submitted to the Illinois EPA the Permittee shall separately report

the sodium silicate production (tonnage) and the
lb/ton emissions for NO_x, PM and CO.

7.1.11 Operational Flexibility/Anticipated Operating Scenarios

N/A

7.1.12 Compliance Procedures

- a. Compliance with the particulate matter limitations of 7.1.3(b) is assured and achieved by the proper operation and maintenance and the work-practices inherent in operation of the affected sodium silicate manufacturing furnaces.
- b. Compliance with Condition 7.1.3(c) is demonstrated under inherent operating conditions of affected sodium silicate manufacturing furnaces fired by distillate oil with a sulfur content meeting the specification of Condition 7.1.7(a), so that no compliance procedures are set in this permit addressing this regulation.
- c. Compliance of the affected sodium silicate manufacturing furnaces with 5.5.1 shall be based on the recordkeeping requirements of 7.1.9(a) and (b), and by the use of the emission rates and formula listed below:
 - i. Sodium Silicate Manufacturing Furnace emissions (tons) = (hours of operation X appropriate emission factor)/2000

<u>Pollutant</u>	<u>Emission Rate</u> (lb/hr)	
	<u>Furnace 1</u>	<u>Furnace 2</u>
PM	9.43	7.5
CO	0.12	3.7

7.2 Unit 02: Boiler
Control: None

7.2.1 Description

Natural Gas Fired Boiler, utilized to produce process steam for use throughout plant, with a maximum design heat input capacity of 17.1 MBtu/hr or less, but greater than or equal to 10 MBtu/hr and constructed, modified or reconstructed after June 9, 1989. Natural gas fired with distillate fuel backup.

7.2.2 List of Emission Units and Pollution Control Equipment

Emission Unit	Date Constructed	Description	Emission Control Equipment
Boiler	04/97	Natural Gas-Fired Boiler (Distillate Oil Backup, #2, #4, and #6). Maximum Heat Input Capacity: 17.1 mmBtu/hr	None

7.2.3 Applicable Provisions and Regulations

- a. An affected boiler for the purpose of these unit specific conditions is a hot water generating unit that is fired with natural gas (with distillate fuel backup), with a maximum heat input capacity of 17.1 MBtu/hr or less, but greater than or equal to 10 MBtu/hr, and constructed, modified or reconstructed after June 9, 1989. As a consequence, the affected boilers are subject to the Standards of Performance for Small Industrial-Commercial-Institutional Steam Generating Units, 40 CFR 60 Subpart Dc because the boilers were constructed after June 9, 1989 and the firing rates of the affected boilers are less than 100 MBtu/hr and greater than 10 MBtu/hr. The affected boiler is identified in Condition 7.2.2.
- b. The emissions of particulate matter (PM) into the atmosphere in any one hour period shall not exceed 0.15 kg/MW-hr (0.10 lb/MBtu) of actual heat input from any fuel combustion emission unit (affected boiler) using liquid fuel exclusively [35 IAC 212.206].

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- c. The emission of carbon monoxide (CO) into the atmosphere from any affected boiler with actual heat input greater than 2.9 MW (10 MBtu/hr) shall not exceed 200 ppm, corrected to 50 percent excess air. [35 IAC 216.121]

- d.
 - i. The emission of sulfur dioxide (SO₂) into the atmosphere in any one hour period from any affected boiler burning liquid fuel exclusively shall not exceed 0.46 kg of sulfur dioxide per MW-hr of actual heat input when distillate fuel oil is burned (0.3 lb/MBtu) [35 IAC 214.122(b) (2)].

 - ii. Pursuant to the New Source Performance Standard, the emission of sulfur dioxide (SO₂) into the atmosphere in any one hour period from any affected boiler burning liquid fuel exclusively shall not exceed 215 :g/J of actual heat input when distillate fuel oil is burned (0.5 lb/MBtu); as an alternative the Permittee shall not combust oil in affected boilers that contains greater than 0.5 weight percent sulfur. All limits shall be based on a 30-day rolling average. [40 CFR 60.42c(d) and (g)]

- e. Pursuant to the New Source Performance Standard, the emission of gases into the atmosphere from any affected boiler, except during periods of startup, malfunction and shutdown, shall not exhibit an opacity greater than 20 percent (6-minute average), except for one 6-minute period per hour of not more than 27 percent opacity. [40 CFR 60.43c(c) and (d)]

- f. Each affected boiler is also subject to the opacity limits identified in Condition 5.2.2(b).

7.2.4 Non-Applicability of Regulations of Concern

- a. The affected boiler is not subject to 35 IAC 217.141, because the actual heat input of the affected boiler is less than 73.2 MW (250 MBtu/hr).

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- b. Pursuant to 35 IAC 215.303, the affected boiler, i.e., fuel combustion emission unit, is not subject to 35 IAC 218.301, Use of Organic Material.
- c. There are no applicable requirements for particulate matter or sulfur dioxide for affected boilers firing natural gas.

7.2.5 Operational and Production Limits and Work Practices

- a. The affected boiler shall only be fired by natural gas or distillate fuel oil as the fuels.
- b. Organic liquid by products or waste shall not be used as fuel at the plant without written approval from the Illinois EPA.
- c. The Permittee shall not use distillate fuel oil (Grades No. 1 and 2 fuels) in the affected boiler with a sulfur content greater than the larger of the following two values:
 - i. 0.28 weight percent, or
 - ii. The Wt percent given by the formula:
$$\text{Maximum Wt percent sulfur} = (0.000015) \times (\text{Gross heating value of oil, Btu/lb}).$$
- d. The maximum firing rate of the boiler shall not exceed 17.1 mmBtu/hr.
- e. The Illinois EPA shall be allowed to sample all fuels stored at the plant.

7.2.6 Emission Limitations

In addition to Condition 5.2.2 and the source wide limitations in Condition 5.5.1, the affected boiler is subject to the following:

Boiler Emission Limits

<u>Pollutant</u>	<u>Boiler</u> <u>(lb/hour)</u>	<u>Boiler</u> <u>(Ton/yr)</u>
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NO _x	2.4	10.5
PM	0.1	0.3
CO	1.0	4.5

Sulfur Dioxide (SO₂) Emissions from Furnace 1 and 2** and Boiler

<u>Fuel</u>	<u>Maximum Usage Rate* (Gal/Yr)</u>	<u>Max. Sulfur Content (Wt. %) (Lb/Gal)</u>		<u>Combined SO₂ Emissions* (Tons/Yr)</u>
Residual Oil	264,177	0.5	0.4	-----
Distillate Oil	1,996,031	0.28	0.02	-----
			Total:	39.9

* Predicted usage rates of fuel oil are unspecified at this time; however limits on maximum usage have been provided so as to limit the combined emissions of SO₂ to 39.9 tons/year.

** Furnaces described in 7.1.

Compliance with annual limits shall be determined from a running total of twelve months of data, i.e., the sum of the data for the current month plus the previous 11 months of data. [T1]

The above limitations were established in Permit 96010005, pursuant to 40 CFR 52.21, Prevention of Significant Deterioration (PSD). These limits ensure that the construction and/or modification addressed in the aforementioned permit does not constitute a new major source or major modification pursuant to Title I of the CAA, specifically the federal rules for Prevention of Significant Deterioration (PSD), 40 CFR 52.21. Also see Attachment 1 for "netting" details that include this unit. [T1]

7.2.7 Testing Requirements

None

7.2.8 Monitoring Requirements

None

7.2.9 Recordkeeping Requirements

The Permittee shall maintain records of the following items to demonstrate compliance with Conditions 5.5.1, 5.5.3 and 7.2.5 pursuant to Section 39.5(7)(b) of the Act:

- a. For affected boilers,
 - i. Total natural gas usage for affected boilers (ft³/day); [40 CFR 60.48c(g)]
 - ii. Total distillate fuel usage for affected boilers (gal/day); [40 CFR 60.48c(g)]
 - iii. The maximum sulfur content (in Wt.%) for each shipment of distillate fuel oil used in the affected boilers;
 - iv. Fuel oil supplier certification, including
 - v. The name of the oil supplier [40 CFR 60.48c(f)(i)]; and
 - vi. A statement from the oil supplier that the oil complies with the specifications under the definition of distillate oil found at 40 CFR 60.41c. [40 CFR 60.48c(f)(ii)]
- b. Annual aggregate NO_x, PM, SO₂, and VOM emissions from the affected boiler, based on fuel consumption and the applicable emission factors, with supporting calculations.

7.2.10 Reporting Requirements

The Permittee shall promptly notify the Illinois EPA, Compliance Section of noncompliance with applicable control and operating requirements as follows pursuant to Section 39.5(7)(f)(ii) of the Act:

- a. Notification within 60 days of operation of an affected boiler that may not have been in compliance with the opacity limitations in Condition 5.5.2(b) only or Conditions 5.5.2(b) and 7.2.3(f), with a copy of such record for each incident.

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- b. If there is an exceedance of sulfur content of distillate fuel oil in excess of the limit specified in Condition 7.2.5(b), the Permittee shall submit a report within 30 days after receipt of a noncompliant shipment of distillate fuel oil.
- c. The Permittee shall submit a quarterly report, which shall include, in addition to the fuel supplier certification required in Condition 7.2.9, a certified statement signed by the Permittee that the records of fuel supplier certifications submitted represent all of the fuel consumed during the quarter. [40 CFR 60.48c(e)(11)]
- d. Emissions of NO_x, PM, SO₂, or VOM from the affected boilers in excess of the limits specified in Condition 5.5.1 and 7.2.6 based on the current month's records plus the preceding 11 months within 30 days of such an occurrence.

7.2.11 Operational Flexibility/Anticipated Operating Scenarios

N/A

7.2.12 Compliance Procedures

- a. Compliance with Condition 7.2.3(c) is demonstrated under inherent operating conditions of an affected boiler, so that no compliance procedures are set in this permit addressing this requirement.
- b. Compliance with Condition 7.2.3(d) is demonstrated under inherent operating conditions of affected boilers fired by distillate oil with a sulfur content meeting the specification of Condition 7.2.5(b), so that no compliance procedures are set in this permit addressing this regulation.
- c. Compliance with fuel usage limits in Condition 7.2.6, and the emission limits in Conditions 5.5.1 and 7.2.6 shall be based on the recordkeeping requirements in Condition 7.2.9 and the emission factors and formulas listed below:

- i. Emissions from the boilers burning natural gas shall be calculated based on the following emission factors:

<u>Pollutant</u>	<u>Emission Factor</u> <u>(lb/Mft³)</u>
NO _x	100
PM	7.6
SO ₂	0.6
VOM	5.5

These are the emission factors for uncontrolled natural gas combustion in commercial boilers (< 100 mmBtu/hr), Tables 1.4-1, 1.4-2, and 1.4-3, AP-42, Volume I, Supplement D, July 1998. VOM emission factor based on TOC factor corrected for 52% methane contribution.

Boiler Emissions (ton) = natural gas consumed multiplied by the appropriate emission factor/2000.

- ii. Emissions from the affected boilers burning distillate fuel oil shall be calculated based on the following emission factors:

<u>Pollutant</u>	<u>Fuel Oil #6</u> <u>Emission</u> <u>Factor</u> <u>(lb/10³gal)</u>	<u>Fuel Oil #4</u> <u>Emission</u> <u>Factor</u> <u>(lb/10³gal)</u>	<u>Fuel Oil #2</u> <u>Emission</u> <u>Factor</u> <u>(lb/10³gal)</u>
SO ₂	157(S)	150S	150S
PM	10	7	2
NO _x	55	20	24
VOM	1.28	0.252	0.252

These are the emission factors for uncontrolled distillate fuel oil combustion in commercial/institutional/residential combustors, Tables 1.3-1 and 1.3-3, AP-42, Volume I, Fifth Edition, September 1998. "%S" indicates that the weight % of sulfur in the oil should be multiplied by the value given.

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Boiler Emissions (ton) = distillate fuel oil
consumed (gallons) multiplied by the
appropriate emission factor/2000.

- iii. Total emissions for each pollutant are to be determined by combining the results of Conditions 7.2.12(c)(i) and (ii) for the affected boiler.

7.3 Unit 03: Process Emission Source

7.3.1 Description

Raw Material Transfer and Storage (Raw Material Unloading):

Sand and soda ash are transferred by two raw material bucket elevators to the rotary head feeder. The rotary head feeder distributes the sand and soda ash to the desired storage bins of the storage silo.

Batch Movement (Batch Transport):

The sand and soda ash from the storage silo are weighed by the weigh hopper and transported to the mixer via the batch conveyor and batch elevator. The mixed material "batch" is transferred to the furnace by the pneumatic transporter.

Batch Dense Phase Storage:

The "batch" is transferred to the batch storage bin by the Batch Movement Emission Unit. It is held here temporarily and then "charged" to the furnace through the batch conveyor, C-205, batch conditioner, C-202, and charger feed chute, T-204, by the charger, C-204.

Glass Recycling (SSS recycling):

Solid sodium silicate can be diverted from the dissolver feed hopper, T-301, by the Chain Conveyor Emission Unit, A-4, to the floor inside the building. Some of the glass is then recycled back to the dissolver feed hopper on an as needed basis using the sss recycle hopper, T-302, and sss bucket elevator, BE-301.

Chain Conveyor:

The molten sodium silicate is released from the sodium silicate furnace 1, FR-201, via the draw and allowed to pour out into the chain conveyor, C-203. The conveyor molds the molten sodium silicate and allows it to cool using water as it proceeds up an

incline. At the top of the chain, the cooled glass is dumped into the dissolver feed hopper, T-301.

Glass Loading (SSS Loading):

Solid sodium silicate can be diverted from the dissolver feed hopper, T-301, by the Chain Conveyor Emission Unit, A-4, to the floor inside the building. The glass will then be loaded into rail cars for shipment to customers off-site.

7.3.2 List of Emission Units and Air Pollution Control Equipment

Date Constructed	Emission Unit	Description	Emission Control Equipment
5/97	Raw Material Transfer and Storage (Raw Material Unloading)	Bucket Elevators, Rotary Head Feeder, and Storage Silo	Dust Collector F-102
5/97	Batch Movement (Batch Transport)	Weigh Hopper, Batch Conveyor, Elevator, and Transporter	Dust Collector F-101
5/97	Batch Dense Phase Storage:	Batch Storage Bin	Dust Collector F-201
9/98	Glass Recycling (SSS Recycling):	Recycling of Sodium Silicate	Dust Collector F-302
5/97	Chain Conveyor	Molding Chain Conveyor	Dust Collector F-301
2/99	Glass Loading (SSS Loading)	Loading of glass into Railcars for Transportation Off-Site	Dust Collector F-1202

7.3.3 Applicability Provisions and Applicable Regulations

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- a. The "affected Process Emission Source", for the purpose of these unit-specific conditions, is the emission unit described in section 7.3.1 and 7.3.2.
- b. The affected Process Emission Source are subject to 35 IAC 212.321, which provides that:

No person shall cause or allow the emission of particulate matter into the atmosphere in any one hour period from any new process emission unit for which, either alone or in combination with the emission of particulate matter from all other similar process emission units for which construction or modification commenced on or after April 14, 1972, which, at a source or premises, exceeds the allowable emission rates specified in subsection (c) of this section [35 IAC 212.321(a)]. (See Attachment 2)

7.3.4 Non-Applicability of Regulations of Concern

None

7.3.5 Operational and Production Limits and Work Practices

The Permittee shall operate, and maintain the bag collectors, including periodic inspection, routine maintenance and prompt repair of defects, if any, that assures compliance with the conditions of this section.

7.3.6 Emission Limitations

In addition to Condition 5.2.2 and the source wide emission limitations in Condition 5.5, the affected Process Emission Source is subject to the following:

Table III: Particulate Matter (PM) Emissions from Process Equipment

Process	Baghouse	Design Flow Rate (scfm)	PM Loading (gr/scf)	Maximum PM (lb/hr)	Maximum PM (Ton/yr)
Batch	F-101	3,800	0.02	0.65	2.85

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Movement					
Raw Material Unloading	F-102	1,000	0.02	0.17	0.75
Batch Dense Phase	F-201	200	0.02	0.03	0.15
SSS Recycling	F-302	2,500	0.02	0.43	1.88
Chain Conveyor	F-301	1,200	0.02	0.21	0.90
SSS Loading	F-1202	5,000	0.02	0.86	3.75
					Total = 10.28

These limits are based on the maximum values provided in the application. The annual emission limit is a product of the hourly limit and continuous operation (8,736 hr/yr). Compliance with annual limits shall be determined from a running total of 12 months of data.

The above limitations were established in Permit 96010005, pursuant to 40 CFR 52.21, Prevention of Significant Deterioration (PSD). These limits ensure that the construction and/or modification addressed in the aforementioned permit does not constitute a new major source or major modification pursuant to Title I of the CAA, specifically the federal rules for Prevention of Significant Deterioration (PSD), 40 CFR 52.21 [T1].

Compliance with annual limits shall be based on a monthly basis from the sum of the data for the current month plus the preceding 11 months (running 12 month total). See Attachment 1 for additional "netting" information that includes this unit. [T1]

7.3.7 Operating Requirements

None

7.3.8 Inspection Requirements

None

7.3.9 Recordkeeping Requirements

In addition to the records required by Condition 5.6, the Permittee shall maintain records of the following items for the affected Process Emission Sources to demonstrate compliance with section 5.5.1, pursuant to Section 39.5(7)(b) of the Act:

- a. Records addressing use of good operating practices for the bag collectors:
 - i. Records for periodic inspection of the bag collectors with date, name of individual performing the inspection, and the nature of the inspection.
 - ii. Records of prompt repair of defects, with identification and description of defect, effect on emissions, date identified, date repaired, and nature of repair.
- b. Inlet flow rates per respective bag collector (scf/min)
- c. Hours per year of operation of each respective process of the affected process emission source.

7.3.10 Reporting Requirements

The Permittee shall promptly notify the Illinois EPA, Compliance Section, of deviations of the affected Process Emission Sources with the permit requirements as follows, pursuant to Section 39.5(7)(f)(ii) of the Act. Reports shall describe the probable cause of such deviations, and any corrective actions or preventive measures taken.

7.3.11 Operational Flexibility/Anticipated Operating Scenarios

The Permittee is authorized to make the following physical or operational change with respect to the affected Process Emission Source without prior notification to the Illinois EPA or revision of this permit. This condition does not affect the Permittee's obligation to properly obtain a construction permit in timely for any activity constituting construction or modification of the source, as defined in 35 IAC 201.102:

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- a. Raw materials and their constituents may be changed so long as that substitution does not violate applicable regulations of condition 7.3.3, Section 5.4 of this permit, or exceed emission limitations per Condition 7.3.6.
- b. Changes to miscellaneous equipment may be performed, so long as these changes do not meet the definitions of construction or modification in 35 IAC 201.102. For purposes of this section, routine repairs or replacement shall not constitute a physical or operational change under 35 IAC 201.102.

7.3.12 Compliance Procedures

- a. Compliance of the affected Process Emission Sources with Condition 7.3.3(b), 7.3.6 and 5.5.1 shall be based on the recordkeeping requirements of 7.3.9 and by the use of the formula listed below:

i.

$$\begin{aligned} \text{Emissions} &= 1 \text{ grain / scf} \div 7000 \text{ grain / lb} \\ (\text{lb / hr}) & \\ & \text{Bag Collector} * \\ & \times \text{Inlet Flow Rate} \times 60 \text{ min/ hr} \\ & \text{scf / min} \\ & \times \left(1 - \frac{\text{Bag Collector Efficiency \%}}{100} \right) \end{aligned}$$

Where: Bag collector efficiency = 99.9% (per application)

* Emissions shall take into account flow rates per respective bag collector.

- ii. Emissions (Ton/yr) = (emissions from part (i), (lb/hr)) x (1 ton/2,000 lb) x (hours/year)

7.4 Unit 04: Fugitive Emissions

7.4.1 Description

Fugitive particulate matter is emitted from truck sand and rail car ash unloading to bucket elevators.

7.4.2 List of Emission Units and Pollution Control Equipment

Emission Unit	Description
04	Sand/Ash Unloading From Trucks

7.4.3 Applicability Provisions and Applicable Regulations

Refer to the source-wide conditions in Section 5.2.2 which address opacity requirements.

7.4.4 Non-Applicability of Regulations of Concern

N/A

7.4.5 Control Requirements

None

7.4.6 Emission Limitations

In addition to Condition 5.2.2 and the source wide emission limitations in Condition 5.5, Unit 04 is subject to the following:

None

7.4.7 Testing Requirements

- a. Upon reasonable request by the Illinois EPA, pursuant to Section 39.5(7)(d) of the Act and 35 IAC 212.107, for both fugitive and non-fugitive particulate matter emissions, a determination as to the presence or absence of visible emissions from emission units shall be conducted in accordance with Method 22, 40 CFR part 60, Appendix A, except that the length of the observing period shall be at the discretion of the observer, but not less than one minute. This test method shall be used to determine compliance with 35 IAC 212.123 [35 IAC 212.107].

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- b. Upon reasonable request by the Illinois EPA, pursuant to Section 39.5(7)(d) of the Act, measurements of opacity shall be conducted in accordance with Method 9, 40 CFR part 60, Appendix A, except that for roadways and parking areas the number of readings required for each vehicle pass will be three taken at 5-second intervals. The first reading shall be at the point of maximum opacity and second and third readings shall be made at the same point, the observer standing at right angles to the plume at least 15 feet away from the plume and observing 4 feet above the surface of the roadway or parking area. After four vehicles have passed, the 12 readings will be averaged. This test method shall be used to determine compliance with 35 IAC 212.301 [35 IAC 212.109].

7.4.8 Inspection Requirements

N/A

7.4.9 Recordkeeping Requirements

The Permittee shall maintain records of the following items to demonstrate compliance with Conditions 5.5.1 and this section pursuant to Section 39.5(7)(b) of the Act:

- a. The quantities of ash and sand unloaded (ton/yr).
- b. Records for fugitive emissions shall be calculated on an annual basis, except this calculation shall be updated if substantial changes to unloading operations occur, i.e. additional unloading systems added.

7.4.10 Reporting Requirements

The Permittee shall promptly notify the Illinois EPA, Compliance Section of noncompliance with the permit requirements pursuant to Section 39.5(7)(f)(ii) of the Act. Reports shall describe the probable cause of such deviations, and any corrective actions or preventive measures taken.

7.4.11 Operational Flexibility/Anticipated Operating Scenarios

N/A

7.4.12 Compliance Procedures

Compliance with the emission limits of section 5 shall be based on the recordkeeping and reporting requirements in this section and the emission factors and methods listed below:

Emissions from unloading of sand and ash shall be calculated based on the following emission factors and formulas:

$$E = K (0.0032) \times [(U/5)^{1.3}/(M/2)^{1.4}]$$

Where:

E = Emission Factor (lb Part/ton Material Handled)

k = Particle Size Multiplier (Dimensionless); from AP-42, Volume I, Fifth Edition, January/95, Section 13.2.4, Page 3.

U = Mean Wind Speed, Miles Per Hour; From AP-42, Volume I, Fifth Edition, January/95, Section 13.2.4, Page 3.

M = Material Moisture Content (%); From AP-42, Volume I, Fifth Edition, January/95, Section 13.2.4, Page 3.

Fugitive Part Emissions (ton/year) = (E) x Ton Material Handled/Year

8.0 GENERAL PERMIT CONDITIONS

8.1 Permit Shield

Pursuant to Section 39.5(7)(j) of the Act, the Permittee has requested and has been granted a permit shield. This permit shield provides that compliance with the conditions of this permit shall be deemed compliance with applicable requirements which were applicable as of the date the proposed permit for this source was issued, provided that either the applicable requirements are specifically identified within this permit, or the Illinois EPA, in acting on this permit application, has determined that other requirements specifically identified are not applicable to this source and this determination (or a concise summary thereof) is included in this permit.

This permit shield does not extend to applicable requirements which are promulgated after _____ **{insert public notice start date}** (the date of issuance of the draft permit) unless this permit has been modified to reflect such new requirements.

8.2 Applicability of Title IV Requirements (Acid Deposition Control)

This source is not an affected source under Title IV of the CAA and is not subject to requirements pursuant to Title IV of the CAA.

8.3 Emissions Trading Programs

No permit revision shall be required for increases in emissions allowed under any USEPA approved economic incentives, marketable permits, emissions trading, and other similar programs or processes for changes that are provided for elsewhere in this permit and that are authorized by the applicable requirement [Section 39.5(7)(o)(vii) of the Act].

As of the date of issuance of this permit, there are no such economic incentive, marketable permit or emission trading programs that have been approved by USEPA.

8.4 Operational Flexibility/Anticipated Operating Scenarios

8.4.1 Changes Specifically Addressed by Permit

Physical or operational changes specifically addressed by the Conditions of this permit that have been identified as

not requiring Illinois EPA notification may be implemented without prior notice to the Illinois EPA.

8.4.2 Changes Requiring Prior Notification

The Permittee is authorized to make physical or operational changes that contravene express permit terms without applying for or obtaining an amendment to this permit, provided that [Section 39.5(12)(a)(i) of the Act]:

- a. The changes do not violate applicable requirements;
- b. The changes do not contravene federally enforceable permit terms or conditions that are monitoring (including test methods), recordkeeping, reporting, or compliance certification requirements;
- c. The changes do not constitute a modification under Title I of the CAA;
- d. Emissions will not exceed the emissions allowed under this permit following implementation of the physical or operational change; and
- e. The Permittee provides written notice to the Illinois EPA, Division of Air Pollution Control, Permit Section, at least 7 days before commencement of the change. This notice shall:
 - i. Describe the physical or operational change;
 - ii. Identify the schedule for implementing the physical or operational change;
 - iii. Provide a statement of whether or not any New Source Performance Standard (NSPS) is applicable to the physical or operational change and the reason why the NSPS does or does not apply;
 - iv. Provide emission calculations which demonstrate that the physical or operational change will not result in a modification; and

- v. Provide a certification that the physical or operational change will not result in emissions greater than authorized under the Conditions of this permit.

8.5 Testing Procedures

Tests conducted to measure composition of materials, efficiency of pollution control devices, emissions from process or control equipment, or other parameters shall be conducted using standard test methods. Documentation of the test date, conditions, methodologies, calculations, and test results shall be retained pursuant to the recordkeeping procedures of this permit. Reports of any tests conducted as required by this permit or as the result of a request by the Illinois EPA shall be submitted as specified in Condition 8.6.

8.6 Reporting Requirements

8.6.1 Monitoring Reports

If monitoring is required by any applicable requirements or conditions of this permit, a report summarizing the required monitoring results, as specified in the conditions of this permit, shall be submitted to the Air Compliance Section of the Illinois EPA every six months as follows [Section 39.5(7)(f) of the Act]:

<u>Monitoring Period</u>	<u>Report Due Date</u>
January - June	September 1
July - December	March 1

All instances of deviations from permit requirements must be clearly identified in such reports. All such reports shall be certified in accordance with Condition 9.9.

8.6.2 Test Notifications

Unless otherwise specified elsewhere in this permit, a written test plan for any test required by this permit shall be submitted to the Illinois EPA for review at least 60 days prior to the testing pursuant to Section 39.5(7)(a) of the Act. The notification shall include at a minimum:

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- a. The name and identification of the affected unit(s);
- b. The person(s) who will be performing sampling and analysis and their experience with similar tests;
- c. The specific conditions under which testing will be performed, including a discussion of why these conditions will be representative of maximum emissions and the means by which the operating parameters for the source and any control equipment will be determined;
- d. The specific determination of emissions and operation which are intended to be made, including sampling and monitoring locations;
- e. The test method(s) which will be used, with the specific analysis method, if the method can be used with different analysis methods;
- f. Any minor changes in standard methodology proposed to accommodate the specific circumstances of testing, with justification; and
- g. Any proposed use of an alternative test method, with detailed justification.

8.6.3 Test Reports

Unless otherwise specified elsewhere in this permit, the results of any test required by this permit shall be submitted to the Illinois EPA within 60 days of completion of the testing. The test report shall include at a minimum [Section 39.5(7)(e)(i) of the Act]:

- a. The name and identification of the affected unit(s);
- b. The date and time of the sampling or measurements;
- c. The date any analyses were performed;
- d. The name of the company that performed the tests and/or analyses;
- e. The test and analytical methodologies used;

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- f. The results of the tests including raw data, and/or analyses including sample calculations;
- g. The operating conditions at the time of the sampling or measurements; and
- h. The name of any relevant observers present including the testing company's representatives, any Illinois EPA or USEPA representatives, and the representatives of the source.

8.6.4 Reporting Addresses

- a. The following addresses should be utilized for the submittal of reports, notifications, and renewals:

- i. Illinois EPA - Air Compliance Section

Illinois Environmental Protection Agency
Bureau of Air
Compliance Section (MC 40)
P.O. Box 19276
Springfield, Illinois 62794-9276

- ii. Illinois EPA - Air Regional Field Office

Illinois Environmental Protection Agency
Division of Air Pollution Control
9511 West Harrison
Des Plaines, Illinois 60016

- iii. Illinois EPA - Air Permit Section

Illinois Environmental Protection Agency
Division of Air Pollution Control
Permit Section (MC 11)
P.O. Box 19506
Springfield, Illinois 62794-9506

- iv. USEPA Region 5 - Air Branch

USEPA (AE - 17J)
Air & Radiation Division
77 West Jackson Boulevard
Chicago, Illinois 60604

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- b. Unless otherwise specified in the particular provision of this permit, reports shall be sent to the Illinois EPA - Air Compliance Section with a copy sent to the Illinois EPA - Air Regional Field Office.

8.7 Obligation to Comply with Title I Requirements

Any term, condition, or requirement identified in this permit by T1, T1R, or T1N is established or revised pursuant to 35 IAC Part 203 or 40 CFR 52.21 ("Title I provisions") and incorporated into this permit pursuant to both Section 39.5 and Title I provisions. Notwithstanding the expiration date on the first page of this permit, the Title I conditions remain in effect pursuant to Title I provisions until the Illinois EPA deletes or revises them in accordance with Title I procedures.

9.0 STANDARD PERMIT CONDITIONS

9.1 Effect of Permit

9.1.1 The issuance of this permit does not release the Permittee from compliance with State and Federal regulations which are part of the Illinois State Implementation Plan, as well as with other applicable statutes and regulations of the United States or the State of Illinois or applicable ordinances, except as specifically stated in this permit and as allowed by law and rule [Section 39.5(7)(j)(iv) of the Act].

9.1.2 In particular, this permit does not alter or affect the following:

- a. The provisions of Section 303 (emergency powers) of the CAA, including USEPA's authority under that Section;
- b. The liability of an owner or operator of a source for any violation of applicable requirements prior to or at the time of permit issuance;
- c. The applicable requirements of the acid rain program consistent with Section 408(a) of the CAA; and
- d. The ability of USEPA to obtain information from a source pursuant to Section 114 (inspections, monitoring, and entry) of the CAA.

9.1.3 Notwithstanding the conditions of this permit specifying compliance practices for applicable requirements, any person (including the Permittee) may also use other credible evidence to establish compliance or noncompliance with applicable requirements.

9.2 General Obligations of Permittee

9.2.1 Duty to Comply

The Permittee must comply with all terms and conditions of this permit. Any permit noncompliance constitutes a violation of the CAA and the Act, and is grounds for any or all of the following: enforcement action, permit termination, revocation and reissuance, modification, or

denial of a permit renewal application [Section 39.5(7)(o)(i) of the Act].

The Permittee shall meet applicable requirements that become effective during the permit term in a timely manner unless an alternate schedule for compliance with the applicable requirement is established.

9.2.2 Duty to Maintain Equipment

The Permittee shall maintain all equipment covered under this permit in such a manner that the performance or operation of such equipment shall not cause a violation of applicable requirements.

9.2.3 Duty to Cease Operation

No person shall cause, threaten or allow the continued operation of any emission unit during malfunction or breakdown of the emission unit or related air pollution control equipment if such operation would cause a violation of an applicable emission standard, regulatory requirement, ambient air quality standard or permit limitation unless such malfunction or breakdown is allowed by a permit condition [Section 39.5(6)(c) of the Act].

9.2.4 Disposal Operations

The source shall be operated in such a manner that the disposal of air contaminants collected by the equipment operations, or activities shall not cause a violation of the Act or regulations promulgated thereunder.

9.2.5 Duty to Pay Fees

The Permittee must pay fees to the Illinois EPA consistent with the fee schedule approved pursuant to Section 39.5(18) of the Act, and submit any information relevant thereto [Section 39.5(7)(o)(vi) of the Act]. The check should be payable to "Treasurer, State of Illinois" and sent to: Fiscal Services Section, Illinois Environmental Protection Agency, P.O. Box 19276, Springfield, Illinois 62794-9276.

9.3 Obligation to Allow Illinois EPA Surveillance

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Upon presentation of proper credentials and other documents, the Permittee shall allow the Illinois EPA, or an authorized representative to perform the following [Section 39.5(7)(a) and (p)(ii) of the Act and 415 ILCS 5/4]:

- a. Enter upon the Permittee's premises where an actual or potential emission unit is located; where any regulated equipment, operation, or activity is located or where records must be kept under the conditions of this permit;
- b. Have access to and copy, at reasonable times, any records that must be kept under the conditions of this permit;
- c. Inspect during hours of operation any sources, equipment (including monitoring and air pollution control equipment), practices, or operations regulated or required under this permit;
- d. Sample or monitor any substances or parameters at any location:
 - i. At reasonable times, for the purposes of assuring permit compliance; or
 - ii. As otherwise authorized by the CAA, or the Act.
- e. Obtain and remove samples of any discharge or emission of pollutants authorized by this permit; and
- f. Enter and utilize any photographic, recording, testing, monitoring, or other equipment for the purposes of preserving, testing, monitoring, or recording any activity, discharge or emission at the source authorized by this permit.

9.4 Obligation to Comply with Other Requirements

The issuance of this permit does not release the Permittee from applicable State and Federal laws and regulations, and applicable local ordinances addressing subjects other than air pollution control.

9.5 Liability

9.5.1 Title

This permit shall not be considered as in any manner affecting the title of the premises upon which the permitted source is located.

9.5.2 Liability of Permittee

This permit does not release the Permittee from any liability for damage to person or property caused by or resulting from the construction, maintenance, or operation of the sources.

9.5.3 Structural Stability

This permit does not take into consideration or attest to the structural stability of any unit or part of the source.

9.5.4 Illinois EPA Liability

This permit in no manner implies or suggests that the Illinois EPA (or its officers, agents or employees) assumes any liability, directly or indirectly, for any loss due to damage, installation, maintenance, or operation of the source.

9.5.5 Property Rights

This permit does not convey any property rights of any sort, or any exclusive privilege [Section 39.5(7)(o)(iv) of the Act].

9.6 Recordkeeping

9.6.1 Control Equipment Maintenance Records

A maintenance record shall be kept on the premises for each item of air pollution control equipment. As a minimum, this record shall show the dates of performance and nature of preventative maintenance activities.

9.6.2 Records of Changes in Operation

A record shall be kept describing changes made at the source that result in emissions of a regulated air pollutant subject to an applicable requirement, but not otherwise regulated under this permit, and the emissions

resulting from those changes [Section 39.5(12)(b)(iv) of the Act].

9.6.3 Retention of Records

- a. Records of all monitoring data and support information shall be retained for a period of at least 5 years from the date of the monitoring sample, measurement, report, or application. Support information includes all calibration and maintenance records, original strip-chart recordings for continuous monitoring instrumentation, and copies of all reports required by this permit [Section 39.5(7)(e)(ii) of the Act].
- b. Other records required by this permit shall be retained for a period of at least 5 years from the date of entry unless a longer period is specified by a particular permit provision.

9.7 Annual Emissions Report

The Permittee shall submit an annual emissions report to the Illinois EPA, Compliance Section no later than May 1 of the following year, as required by 35 IAC Part 254.

9.8 Requirements for Compliance Certification

Pursuant to Section 39.5(7)(p)(v) of the Act, the Permittee shall submit annual compliance certifications. The compliance certifications shall be submitted no later than May 1 or more frequently as specified in the applicable requirements or by permit condition. The compliance certifications shall be submitted to the Air Compliance Section, Air Regional Field Office, and USEPA Region 5 - Air Branch. The addresses for the submittal of the compliance certifications are provided in Condition 8.6.4 of this permit.

- a. The certification shall include the identification of each term or condition of this permit that is the basis of the certification; the compliance status; whether compliance was continuous or intermittent; the method(s) used for determining the compliance status of the source, both currently and over the reporting period consistent with the conditions of this permit.

- b. All compliance certifications shall be submitted to USEPA Region 5 in Chicago as well as to the Illinois EPA.
- c. All compliance reports required to be submitted shall include a certification in accordance with Condition 9.9.

9.9 Certification

Any document (including reports) required to be submitted by this permit shall contain a certification by a responsible official of the Permittee that meets the requirements of Section 39.5(5) of the Act [Section 39.5(7)(p)(i) of the Act]. An example Certification by a Responsible Official is included as an attachment to this permit.

9.10 Defense to Enforcement Actions

9.10.1 Need to Halt or Reduce Activity Not a Defense

It shall not be a defense for the Permittee in an enforcement action that it would have been necessary to halt or reduce the permitted activity in order to maintain compliance with the conditions of this permit [Section 39.5(7)(o)(ii) of the Act].

9.10.2 Emergency Provision

- a. An emergency shall be an affirmative defense to an action brought for noncompliance with the technology-based emission limitations under this permit if the following conditions are met through properly signed, contemporaneous operating logs, or other relevant evidence:
 - i. An emergency occurred as provided in Section 39.5(7)(k) of the Act and the Permittee can identify the cause(s) of the emergency. Normally, an act of God such as lightning or flood is considered an emergency;
 - ii. The permitted source was at the time being properly operated;
 - iii. The Permittee submitted notice of the emergency to the Illinois EPA within two working days of the time when emission

limitations were exceeded due to the emergency. This notice must contain a detailed description of the emergency, any steps taken to mitigate emissions, and corrective actions taken; and

- iv. During the period of the emergency the Permittee took all reasonable steps to minimize levels of emissions that exceeded the emission limitations, standards, or regulations in this permit.
- b. This provision is in addition to any emergency or upset provision contained in any applicable requirement. This provision does not relieve a Permittee of any reporting obligations under existing federal or state laws or regulations.

9.11 Permanent Shutdown

This permit only covers emission units and control equipment while physically present at the indicated source location(s). Unless this permit specifically provides for equipment relocation, this permit is void for the operation or activity of any item of equipment on the date it is removed from the permitted location(s) or permanently shut down. This permit expires if all equipment is removed from the permitted location(s), notwithstanding the expiration date specified on this permit.

9.12 Reopening and Reissuing Permit for Cause

9.12.1 Permit Actions

This permit may be modified, reopened, and reissued, for cause pursuant to Section 39.5(15) of the Act. The filing of a request by the Permittee for a permit modification, revocation, and reissuance, or of a notification of planned changes or anticipated noncompliance does not stay any permit condition [Section 39.5(7)(o)(iii) of the Act].

9.12.2 Reopening and Revision

This permit must be reopened and revised if any of the following occur [Section 39.5(15)(a) of the Act]:

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- a. Additional requirements become applicable to the equipment covered by this permit and three or more years remain before expiration of this permit;
- b. Additional requirements become applicable to an affected source for acid deposition under the acid rain program;
- c. The Illinois EPA or USEPA determines that this permit contains a material mistake or inaccurate statement when establishing the emission standards or limitations, or other terms or conditions of this permit; and
- d. The Illinois EPA or USEPA determines that this permit must be revised to ensure compliance with the applicable requirements of the Act.

9.12.3 Inaccurate Application

The Illinois EPA has issued this permit based upon the information submitted by the Permittee in the permit application. Any misinformation, false statement or misrepresentation in the application shall be grounds for revocation under Section 39.5(15)(b) of the Act.

9.12.4 Duty to Provide Information

The Permittee shall furnish to the Illinois EPA, within a reasonable time specified by the Illinois EPA any information that the Illinois EPA may request in writing to determine whether cause exists for modifying, revoking and reissuing, or terminating this permit, or to determine compliance with this permit. Upon request, the Permittee shall also furnish to the Illinois EPA copies of records required to be kept by this permit, or for information claimed to be confidential, the Permittee may furnish such records directly to USEPA along with a claim of confidentiality [Section 39.5(7)(o)(v) of the Act].

9.13 Severability Clause

The provisions of this permit are severable, and should any one or more be determined to be illegal or unenforceable, the validity of the other provisions shall not be affected. The rights and obligations of the Permittee shall be construed and enforced as if

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this permit did not contain the particular provisions held to be invalid and the applicable requirements underlying these provisions shall remain in force [Section 39.5(7)(i) of the Act].

9.14 Permit Expiration and Renewal

The right to operate terminates on the expiration date unless the Permittee has submitted a timely and complete renewal application. For a renewal to be timely it must be submitted no later than 9 and no sooner than 12 months prior to expiration. The equipment may continue to operate during the renewal period until final action is taken by the Illinois EPA, in accordance with the original permit conditions [Section 39.5(5)(l), (n), and (o) of the Act].

10.0 ATTACHMENTS

10.1 Attachment 1 - Summary of Emission Limits, Fuel Usage Limits, and Contemporaneous Change in Emissions

Table I: Furnace and Boiler Emission Limits

<u>Pollutant</u>	<u>Furnace 1 (Lb/Hour)</u>	<u>Furnace 2 (Lb/Hour)</u>	<u>Boiler (Lb/Hour)</u>	<u>Furnace 1 (Ton/Yr)</u>	<u>Furnace 2 (Ton/Yr)</u>	<u>Boiler (Ton/Yr)</u>	<u>Total (Ton/Yr)</u>
NO _x	60.0	65.0	2.4	262.8	284.7	10.5	558.0
PM	9.43	7.5	0.1	41.3	32.9	0.3	74.5
CO	3.5	3.7	1.0	15.3	16.2	4.5	36.0

Table II: Sulfur Dioxide (SO₂) Emissions from Furnace 1 & 2 and Boiler

<u>Fuel</u>	<u>Maximum Usage Rate* (Gal/Yr)</u>	<u>Max. Sulfur Content (Wt. %) (Lb/Gal)</u>		<u>Combined SO₂ Emissions* (Tons/Yr)</u>
Residual Oil	264,177	0.5	0.4	-----
Distillate Oil	1,996,031	0.28	0.02	-----
				Total: 39.9

* Predicted usage rates of fuel oil are unspecified at this time; however limits on maximum usage have been provided so as to limit the combined emissions of SO₂ to 39.9 tons/year.

Table III: Particulate Matter (PM) Emissions from Process Equipment

<u>Process</u>	<u>Baghouse</u>	Design	<u>PM Loading</u>	<u>Maximum PM Emissions</u>	
		<u>Flow Rate</u>		<u>(gr/scf)</u>	<u>(Lb/Hr)</u>
		<u>(scfm)</u>			
Batch Movement	F-101	3,800	0.02	0.65	2.85
Raw Material Unloading	F-102	1,000	0.02	0.17	0.75
Batch Dense Phase	F-201	200	0.02	0.03	0.15
SSS Recycling	F-302	2,500	0.02	0.17	0.01
Chain Conveyor	F-301	1,200	0.02	0.21	0.90
SSS Loading	F-1202	5,000	0.02	0.86	3.75
				Total:	10.28

Table IV Contemporaneous Change in Emissions (Tons Per Year)

	<u>Actual Emissions</u>	<u>Potential Emissions</u>	<u>Net</u>
	<u>Before Project</u>	<u>After Project</u>	<u>Change</u>
	<u>(Previous Plant)*</u>	<u>(Altered Plant)**</u>	
NO _x	549.1	558.0	8.9
PM	105.2	84.8	20.4

* Previous plant emissions reflect the average actual emissions of the furnaces based on the rate at which this furnace actually emitted during a representative two year period, which is calendar year 1993 and 1994 prior to shutdown in 1995.

** New plant emissions reflect permitted emissions from the altered plant.

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10.2 Attachment 2 Emissions of Particulate Matter from New Process
Emission Units

10.2.1 Process Emission Units For Which Construction or
Modification Commenced On or After April 14, 1972

- a. Except as further provided in this Part, no person shall cause or allow the emission of particulate matter into the atmosphere in any one hour period from any new process emission unit which, either alone or in combination with the emission of particulate matter from all other similar process emission units for which construction or modification commenced on or after April 14, 1972, at a source or premises, exceeds the allowable emission rates specified in subsection (c) of this Section.
- b. Interpolated and extrapolated values of the data in subsection (c) of this Section shall be determined by using the equation:

$$E = A (P)^B$$

where:

P = Process weight rate; and
E = Allowable emission rate; and,

- i. Up to process weight rates of 408 Mg/hr (450 T/hr):

	Metric	English
P	Mg/hr	T/hr
E	kg/hr	lbs/hr
A	1.214	2.54
B	0.534	0.534

- ii. For process weight rate greater than or equal to 408 Mg/hr (450 T/hr):

	Metric	English
P	Mg/hr	T/hr
E	kg/hr	lbs/hr
A	11.42	24.8

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B 0.16 0.16

c. Limits for Process Emission Units For Which
Construction or Modification Commenced On or After
April 14, 1972.

Metric		English	
P	E	P	E
Mg/hr	kg/hr	T/hr	lbs/hr
0.05	0.25	0.05	0.55
0.1	0.29	0.10	0.77
0.2	0.42	0.20	1.10
0.3	0.64	0.30	1.35
0.4	0.74	0.40	1.58
0.5	0.84	0.50	1.75
0.7	1.00	0.75	2.40
0.9	1.15	1.00	2.60
1.8	1.66	2.00	3.70
2.7	2.1	3.00	4.60
3.6	2.4	4.00	5.15
4.5	2.7	5.00	6.00
9.	3.9	10.00	8.70
3.	4.8	15.00	10.80
18.	5.7	20.00	12.50
23.	6.5	25.00	14.00
27.	7.1	30.00	15.60
32.	7.7	35.00	17.00
36.	8.2	40.00	18.20
41.	8.8	45.00	19.20
45.	9.3	50.00	20.50
90.	13.4	100.00	29.50
140.	17.0	150.00	37.00
180.	19.4	200.00	43.00
230.	22.	250.00	48.50
270.	24.	300.00	53.00
320.	26.	350.00	58.00
360.	28.	400.00	62.00
408.	30.1	450.00	66.00
454.	30.4	500.00	67.00

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10.3 Attachment 3 - Example Certification by a Responsible Official

I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

Signature: _____

Name: _____

Official Title: _____

Telephone No.: _____

Date Signed: _____

10.4 Attachment 4 - Guidance on Revising This Permit

The Permittee must submit an application to the Illinois EPA using the appropriate revision classification in accordance with Sections 39.5(13) and (14) of the Act and 35 IAC 270.302. Specifically, there are currently three classifications for revisions to a CAAPP permit. These are:

1. Administrative Permit Amendment;
2. Minor Permit Modification; and
3. Significant Permit Modification.

The Permittee must determine, request, and submit the necessary information to allow the Illinois EPA to use the appropriate procedure to revise the CAAPP permit. A brief explanation of each of these classifications follows.

1. Administrative Permit Amendment
 - Corrects typographical errors;
 - Identifies a change in the name, address, or phone number of any person identified in the permit, or provides a similar minor administrative change at the source;
 - Requires more frequent monitoring or reporting by the Permittee;
 - Allows for a change in ownership or operational control of the source where no other change in the permit is necessary, provided that a written agreement containing a specific date for transfer of permit responsibility, coverage, and liability between the current and new Permittees has been submitted to the Illinois EPA. This shall be handled by completing form 272-CAAPP, REQUEST FOR OWNERSHIP CHANGE FOR CAAPP PERMIT; or
 - Incorporates into the CAAPP permit a construction permit, provided the conditions of the construction permit meet the requirements for the issuance of CAAPP permits.

2. Minor Permit Modification

- Do not violate any applicable requirement;
- Do not involve significant changes to existing monitoring, reporting, or recordkeeping requirements in the permit;
- Do not require a case-by-case determination of an emission limitation or other standard, or a source-specific determination of ambient impacts, or a visibility or increment analysis;
- Do not seek to establish or change a permit term or condition for which there is no corresponding underlying requirement and which avoids an applicable requirement to which the source would otherwise be subject. Such terms and conditions include:
 - A federally enforceable emissions cap assumed to avoid classification as a modification under any provision of Title I of the CAA; and
 - An alternative emissions limit approved pursuant to regulations promulgated under Section 112(i)(5) of the CAA.
- Are not modifications under any provision of Title I of the CAA;
- Are not required to be processed as a significant permit modification; and
- Modifications involving the use of economic incentives, marketable permits, emissions trading, and other similar approaches.

An application for a minor permit modification shall include the following:

- A description of the change, the emissions resulting from the change, and any new applicable requirements that will apply if the change occurs;
- The source's suggested draft permit/conditions;

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- Certification by a responsible official that the proposed modification meets the criteria for use of minor permit modification procedures and a request that such procedures be used; and
- Information as contained on form 271-CAAPP, MINOR PERMIT MODIFICATION FOR CAAPP PERMIT for the Illinois EPA to use to notify USEPA and affected States.

3. Significant Permit Modification

- Applications that do not qualify as either minor permit modifications or as administrative permit amendments;
- Applications requesting a significant change in existing monitoring permit terms or conditions;
- Applications requesting a relaxation of reporting or recordkeeping requirements; and
- Cases in which, in the judgment of the Illinois EPA, action on an application for modification would require decisions to be made on technically complex issues.

An application for a significant permit modification shall include the following:

- A detailed description of the proposed change(s), including all physical changes to equipment, changes in the method of operation, changes in emissions of each pollutant, and any new applicable requirements which will apply as a result of the proposed change. Note that the Permittee need only submit revised forms for equipment and operations that will be modified.

The Illinois EPA requires the information on the following appropriate forms to be submitted in accordance with the proper classification:

- Form 273-CAAPP, REQUEST FOR ADMINISTRATIVE PERMIT AMENDMENT FOR CAAPP PERMIT; or
- Form 271-CAAPP, MINOR PERMIT MODIFICATION FOR CAAPP PERMIT; or
- Form 200-CAAPP, APPLICATION FOR CAAPP PERMIT (for significant modification).

Application forms can be obtained from the Illinois EPA website at <http://www.epa.state.il.us/air/forms>.

Note that the request to revise the permit must be certified for truth, accuracy, and completeness by a responsible official.

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Note that failure to submit the required information may require the Illinois EPA to deny the application. The Illinois EPA reserves the right to require that additional information be submitted as needed to evaluate or take final action on applications pursuant to Section 39.5(5)(g) of the Act and 35 IAC 270.305.



Illinois Environmental Protection Agency
 Division Of Air Pollution Control -- Permit Section
 P.O. Box 19506
 Springfield, Illinois 62794-9506

Application For Construction Permit (For CAAPP Sources Only)	For Illinois EPA use only
	I.D. number:
	Permit number:
Date received:	

This form is to be used by CAAPP sources to supply information necessary to obtain a construction permit. Please attach other necessary information and completed CAAPP forms regarding this construction/modification project.

Source Information		
1. Source name:		
2. Source street address:		
3. City:	4. Zip code:	
5. Is the source located within city limits?		<input type="checkbox"/> Yes <input type="checkbox"/> No
6. Township name:	7. County:	8. I.D. number:

Owner Information		
9. Name:		
10. Address:		
11. City:	12. State:	13. Zip code:

Operator Information (if different from owner)		
14. Name		
15. Address:		
16. City:	17. State:	18. Zip code:

Applicant Information	
19. Who is the applicant? <input type="checkbox"/> Owner <input type="checkbox"/> Operator	20. All correspondence to: (check one) <input type="checkbox"/> Owner <input type="checkbox"/> Operator <input type="checkbox"/> Source
21. Attention name and/or title for written correspondence:	

This Agency is authorized to require and you must disclose this information under 415 ILCS 5/39. Failure to do so could result in the application being denied and penalties under 415 ILCS 5 et seq. It is not necessary to use this form in providing this information. This form has been approved by the forms management center.



Illinois Environmental Protection Agency
Division Of Air Pollution Control -- Permit Section
P.O. Box 19506
Springfield, Illinois 62794-9506

22. Technical contact person for application:	23. Contact person's telephone number:
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This Agency is authorized to require and you must disclose this information under 415 ILCS 5/39. Failure to do so could result in the application being denied and penalties under 415 ILCS 5 et seq. It is not necessary to use this form in providing this information. This form has been approved by the forms management center.

Summary Of Application Contents

24.	Does the application address whether the proposed project would constitute a new major source or major modification under each of the following programs: a) Non-attainment New Source Review – 35 IAC Part 203; b) Prevention of Significant Deterioration (PSD) – 40 CFR 52.21; c) Hazardous Air Pollutants: Regulations Governing Constructed or Reconstructed Major Sources – 40 CFR Part 63?	Yes	No
25.	Does the application identify and address all applicable emissions standards, including those found in the following: a) Board Emission Standards – 35 IAC Chapter I, Subtitle B; b) Federal New Source Performance Standards – 40 CFR Part 60; c) Federal Standards for Hazardous Air Pollutants – 40 CFR Parts 61 and 63?	Yes	No
26.	Does the application include a process flow diagram(s) showing all emission units and control equipment, and their relationship, for which a permit is being sought?	Yes	No
27.	Does the application include a complete process description for the emission units and control equipment for which a permit is being sought?	Yes	No
28.	Does the application include the information as contained in completed CAAPP forms for all appropriate emission units and air pollution control equipment, listing all applicable requirements and proposed exemptions from otherwise applicable requirements, and identifying and describing any outstanding legal actions by either the USEPA or the Illinois EPA? Note: The use of "APC" application forms is not appropriate for applications for CAAPP sources. CAAPP forms should be used to supply information.	Yes	No
29.	If the application contains TRADE SECRET information, has such information been properly marked and claimed, and have two separate copies of the application suitable for public inspection and notice been submitted, in accordance with applicable rules and regulations?	Yes	No
		<input type="checkbox"/> Not Applicable, No TRADE SECRET information in this application	

Note 1: Answering "No" to any of the above may result in the application being deemed incomplete.

Signature Block

This certification must be signed by a responsible official. Applications without a signed certification will be returned as incomplete.	
30. I certify under penalty of law that, based on information and belief formed after reasonable inquiry, the statements and information contained in this application are true, accurate and complete. Authorized Signature:	
BY:	<div style="display: flex; justify-content: space-between;"> </div>
	<div style="display: flex; justify-content: space-between;"> AUTHORIZED SIGNATURE TITLE OF SIGNATORY </div>
	<div style="display: flex; justify-content: space-between;"> </div>
	<div style="display: flex; justify-content: space-between;"> TYPED OR PRINTED NAME OF SIGNATORY DATE </div>

Note 2: An operating permit for the construction/modification permitted in a construction permit must be obtained by applying for the appropriate revision to the source's CAAPP permit, if necessary.

10.6 Attachment 6 - Guidance on Renewing This Permit

Timeliness - Pursuant to Section 39.5(5)(n) of the Act and 35 IAC 270.301(d), a source must submit to the Illinois EPA a complete CAAPP application for the renewal of a CAAPP permit not later than 9 months before the date of permit expiration of the existing CAAPP permit in order for the submittal to be deemed timely. Note that the Illinois EPA typically sends out renewal notices approximately 18 months prior to the expiration of the CAAPP permit.

The CAAPP application must provide all of the following information in order for the renewal CAAPP application to be deemed complete by the Illinois EPA:

1. A completed renewal application form 200-CAAPP, APPLICATION FOR CAAPP PERMIT.
2. A completed compliance plan form 293-CAAPP, COMPLIANCE PLAN/SCHEDULE OF COMPLIANCE FOR CAAPP PERMIT.
3. A completed compliance certification form 296-CAAPP, COMPLIANCE CERTIFICATION, signed by the responsible official.
4. Any applicable requirements that became effective during the term of the permit and that were not included in the permit as a reopening or permit revision.
5. If this is the first time this permit is being renewed and this source has not yet addressed CAM, the application should contain the information on form 464-CAAPP, COMPLIANCE ASSURANCE MONITORING (CAM) PLAN.
6. Information addressing any outstanding transfer agreement pursuant to the ERMS.
7. a. If operations of an emission unit or group of emission units remain unchanged and are accurately depicted in previous submittals, the application may contain a letter signed by a responsible official that requests incorporation by reference of existing information previously submitted and on file with the Illinois EPA. This letter must also include a statement that information incorporated by reference is also being certified for truth and accuracy by the

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responsible official's signing of the form 200-CAAPP, APPLICATION FOR CAAPP PERMIT and the form 296-CAAPP, COMPLIANCE CERTIFICATION. The boxes should be marked yes on form 200-CAAPP, APPLICATION FOR CAAPP PERMIT, as existing information is being incorporated by reference.

- b. If portions of current operations are not as described in previous submittals, then in addition to the information above for operations that remain unchanged, the application must contain the necessary information on all changes, e.g., discussion of changes, new or revised CAAPP forms, and a revised fee form 292-CAAPP, FEE DETERMINATION FOR CAAPP PERMIT, if necessary.
8. Information about all off-permit changes that were not prohibited or addressed by the permit to occur without a permit revision and the information must be sufficient to identify all applicable requirements, including monitoring, recordkeeping, and reporting requirements, for such changes.
9. Information about all changes made under 40 CFR 70.4(b)(12)(i) and (ii) that require a 7-day notification prior to the change without requiring a permit revision.

The Illinois EPA will review all applications for completeness and timeliness. If the renewal application is deemed both timely and complete, the source shall continue to operate in accordance with the terms and conditions of its CAAPP permit until final action is taken on the renewal application.

Notwithstanding the completeness determination, the Illinois EPA may request additional information necessary to evaluate or take final action on the CAAPP renewal application. If such additional information affects your allowable emission limits, a revised form 292-CAAPP, FEE DETERMINATION FOR CAAPP PERMIT must be submitted with the requested information. The failure to submit to the Illinois EPA the requested information within the time frame specified by the Illinois EPA, may force the Illinois EPA to deny your CAAPP renewal application pursuant to Section 39.5 of the Act.

Application forms may be obtained from the Illinois EPA website at <http://www.epa.state.il.us/air/forms.html>.

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If you have any questions regarding this matter, please contact a permit analyst at 217/782-2113.

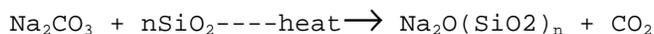
Mail renewal applications to:

Illinois Environmental Protection Agency
Division of Air Pollution Control
Permit Section (MC 11)
P.O. Box 19506
Springfield, Illinois 62794-9506

I. INTRODUCTION

This source has applied for a Clean Air Act Permit Program (CAAPP) operating permit for its existing operation. The CAAPP is the program established in Illinois for the operating permits for significant stationary sources required by the federal Clean Air Act, as amended in 1990. The conditions in a CAAPP permit are enforceable by both the Illinois Environmental Protection Agency (Illinois EPA) and the USEPA.

PQ Corporation is located at 1945 Delaney Road in Gurnee. The raw materials, sand and soda ash, are brought to the facility by rail car and/or truck. They are then conveyed to a storage silo that has separate storage bins for sand and soda ash via bucket elevators. From the storage silo the raw materials are conveyed and weighed to determine the proper ratio of sand and soda ash for the desired product. This plant usually runs "3.22" glass. This is the ratio of sand to soda ash in the pneumatic conveying system to the batch storage bin. Almost all of the transport of the raw materials and batch is enclosed, and the emissions are controlled by dust collectors. The refractory brick furnace is charged from the batch storage bin via a batch conveyor and feed chute. The batch is wetted in the batch conveyor prior to charging the furnace to minimize particulate emissions. Once the material is in the furnace the heat fuses the sand and soda ash in the furnace at a bout 1300 degrees C (2372 degrees F). The reaction formula is as follows:



As the molten product leaves the furnace through the draw, it is poured onto the open chain molding conveyor. While on the conveyor it cools to form solid sodium silicate. Most of the product is transferred to the dissolver feed hopper but occasionally some glass is stored on the floor for shipment off-site. The solid sodium silicate in the dissolver feed hopper is transferred to the dissolver where it is converted to liquid sodium silicate using steam. Caustic is occasionally added to the product to adjust the final ratio. The final liquid product is placed in storage tanks until it is shipped off-site via rail cars and/or trucks.

II. EMISSION UNITS

Significant emission units at this source are as follows:

Emission Unit	Description	Date Constructed	Emission Control Equipment
01	Sodium Silicate Manufacturing Furnaces	Furnace 1: 5/65 5/97* Furnace 2: 5/67	Low NO _x Burner/Low Excess Air Operating (BACT)

		5/00*	
02	Boiler	4/97	None

Emission Unit	Description	Date Constructed	Emission Control Equipment
03	Process Emission Source:		Dust Collectors
	Batch Movement	5/97	F-101
	Raw Material Unloading	5/97	F-102
	Batch Dense Phase	5/97	F-201
	SSS Recycling	9/98	F-302
	Chain Conveyor	5/97	F-301
	SSS Loading	2/99	F-1202
04	Fugitive Particulate Emissions: Sand/Ash Unloading From Trucks	----	None

* Restructuring of existing glass furnaces to sodium silicate producing furnaces.

III. EMISSIONS

This source is required to have a CAAPP permit since it is a major source of emissions.

For purposes of fees, the source is allowed the following emissions:

Permitted Emissions of Regulated Pollutants

Pollutant	Tons/Year
Volatile Organic Material (VOM)	----
Sulfur Dioxide (SO ₂)	39.9
Particulate Matter (PM)	87.1
Nitrogen Oxides (NO _x)	558.0
HAP, not included in VOM or PM	----
Total	685.0

This permit is a combined Title I/CAAPP permit that may contain terms and conditions which address the applicability, and compliance if determined applicable, of Title I of the Clean Air Act and regulations promulgated thereunder, including 40 CFR 52.21 - federal Prevention of Significant Deterioration (PSD) and 35 IAC Part 203 - Major Stationary Sources Construction and Modification. Any such terms and conditions are identified within the permit by T1, T1R, or T1N. The source has requested that the Illinois EPA establish or revise such conditions in a Title I permit, consistent with the information provided in the CAAPP

application. Any conditions established in a construction permit pursuant to Title I and not revised or deleted in this permit, remain in effect pursuant to Title I provisions until such time that the Illinois EPA revises or deletes them.

IV. APPLICABLE EMISSION STANDARDS

All emission sources in Illinois must comply with the Illinois Pollution Control Board's emission standards. The Board's emission standards represent the basic requirements for sources in Illinois.

All emission sources in Illinois must comply with the federal New Source Performance Standards (NSPS). The Illinois EPA is administering NSPS in Illinois on behalf of the United States EPA under a delegation agreement.

All emission sources in Illinois must comply with the federal National Emission Standards for Hazardous Air Pollutants (NESHAP). The Illinois EPA is administering NESHAP in Illinois on behalf of the United States EPA under a delegation agreement.

V. PROPOSED PERMIT

CAAPP

A CAAPP permit contains all conditions that apply to a source and a listing of the applicable state and federal air pollution control regulations that are the origin of the conditions. The permit also contains emission limits and appropriate compliance procedures. The appropriate compliance procedures may include inspections, work practices, monitoring, record keeping, and reporting to show compliance with these requirements. The Permittee must carry out these procedures on an on-going basis.

Title I

A combined Title I/CAAPP permit contains terms and conditions established by the Illinois EPA pursuant to authority found in Title I provisions, e.g., 40 CFR 52.21 - federal Prevention of Significant Deterioration (PSD) and 35 IAC Part 203 - Major Stationary Sources Construction and Modification. Notwithstanding the expiration date on the first page of the permit, the Title I conditions remain in effect pursuant to Title I provisions until the Illinois EPA deletes or revises them in accordance with Title I procedures.

VI. REQUEST FOR COMMENTS

It is the Illinois EPA's preliminary determination that this source's permit application meets the standards for issuance of a CAAPP permit.

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The Illinois EPA is therefore proposing to issue a CAAPP permit, subject to the conditions proposed in the draft permit.

Comments are requested on this proposed action by the Illinois EPA and the proposed conditions on the draft permit. If substantial public interest is shown in this matter, the Illinois EPA will consider holding a public hearing in accordance with 35 Ill. Adm. Code Part 166.

SIS:98050013:psj