



PART 70 PERMIT TO OPERATE

Under the authority of RSMo 643 and the Federal Clean Air Act the applicant is authorized to operate the air contaminant source(s) described below, in accordance with the laws, rules, and conditions set forth herein.

Operating Permit Number: OP2012-044
Expiration Date: OCT 22 2017
Installation ID: 510-0809
Project Number: 2009-09-030

Installation Name and Address

PQ Corporation
4238 Geraldine Avenue
St. Louis, MO 63115
City of St. Louis County

Parent Company's Name and Address

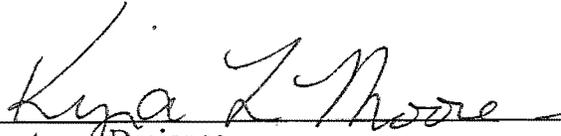
PQ Corporation
300 Lindenwood Drive
Malvern, PA 19355-1740

Installation Description:

The PQ Corporation, located within the city of St. Louis, produces sodium silicate (water glass) and silica gel. Sodium silicate and silica gel are used in a variety of products including clarifying agents for alcoholic beverages. The production of sodium silicate begins by unloading railcars of soda ash and sand into storage silos. From the storage silos, a carefully controlled amount of soda ash and sand are fused and reacted to produce sodium silicate. The sodium silicate is then solidified and conveyed to the storage silos. Silica gel is produced by reacting sodium silicate with sulfuric acid. Once the silica gel has been produced; it is washed, dried and ground to the size specified by the customer. The installation is a major source for particulate matter and nitrogen oxides.

OCT 23 2012

Effective Date


Director or Designee

Department of Natural Resources

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I. Installation Description and Equipment Listing

INSTALLATION DESCRIPTION

The PQ Corporation, located within the city of St. Louis, produces sodium silicate (water glass) and silica gel. Sodium silicate and silica gel are used in a variety of products including clarifying agents for alcoholic beverages. The production of sodium silicate begins by unloading railcars of soda ash and sand into storage silos. From the storage silos, a carefully controlled amount of soda ash and sand are fused and reacted to produce sodium silicate. The sodium silicate is then solidified and conveyed to the storage silos.

Silica gel is produced by reacting sodium silicate with sulfuric acid. Once the silica gel has been produced; it is washed, dried and ground to the size specified by the customer. The drying and grinding are accomplished in the Mill Heater. From the Mill Heater, the silica gel is transported by air to the packaging operation.

The installation is a major source for particulate matter and nitrogen oxides.

The actual emissions for the past five years for the installation are listed below:

Reported Air Pollutant Emissions, tons per year					
Pollutants	2011	2010	2009	2008	2007
Particulate Matter ≤ Ten Microns (PM ₁₀)	32.78	59.41	47.85	66.57	55.87
Particulate Matter ≤ 2.5 Microns (PM _{2.5})	26.11	59.41	47.85	66.57	55.83
Sulfur Oxides (SO _x)	0.07	0.07	0.16	0.18	0.17
Nitrogen Oxides (NO _x)	92.43	101.11	81.10	113.35	95.56
Volatile Organic Compounds (VOC)	4.28	4.63	3.72	5.19	4.43
Carbon Monoxide (CO)	9.34	9.63	8.17	9.65	8.81
Lead (Pb)	0.00	0.00	0.00	0.00	0.00
Hazardous Air Pollutants (HAPs)	0.36	0.00	0.00	0.00	0.00
Ammonia (NH ₃)	0.50	0.52	0.44	0.53	0.51

EMISSION UNITS WITH LIMITATIONS

The following list provides a description of the equipment at this installation which emits air pollutants and identified as having unit-specific emission limitations.

Emission Unit #	Description of Emission Unit
Sodium Silicate Production	
EP1	Sand Tank
EP3	Sodium Silicate Melting & Regenerating Furnace
EP4	Vibratory Conveyor
EP5	Dissolver Tanks
EP6	Boiler #1
EP12	Boiler #2
Silica Gel Production	
EP102	Mill and Heater
EP103	Packaging Operations
EP104	Product Silo

EMISSION UNITS WITHOUT LIMITATIONS

The following list provides a description of the equipment, which does not have unit specific limitations at the time of permit issuance.

Sodium Silicate Production

Dense Phase Transport System (EP2) - Weigh hopper, including belt conveyors, for loading of soda ash and sand into furnace

Soda Ash Unloading

Soda Ash Elevator

Soda Ash Tank

Glass Vibrating Feeders

Batch Wetters

Product Tank (liquid, Installed after 03/24/67)

Sodium Silicate Tank #3 (12,308 gallons, Installed before 03/24/67)

Sodium Silicate Tank #4 (12,308 gallons, Installed before 03/24/67)

Sodium Silicate Tank #5 (12,308 gallons, Installed before 03/24/67)

Sodium Silicate Tank #13 (90,484 gallons, Installed before 03/24/67)

Sodium Silicate Tank #14 (90,484 gallons, Installed before 03/24/67)

Sodium Silicate Tank #15 (203,588 gallons, Installed before 03/24/67)

Sodium Silicate Tank #16 (73,445 gallons, Installed before 03/24/67)

Sodium Silicate Tank #22 (203,588 gallons, Installed before 03/24/67)

Sodium Silicate Tank #24 (73,292 gallons, Installed before 03/24/67)

Sodium Silicate Tank #26 (18,462 gallons, Installed before 03/24/67)

Sodium Silicate Tank #27 (18,462 gallons, Installed before 03/24/67)

Sodium Silicate Tank #29 (203,588 gallons, Installed before 03/24/67)

Sodium Silicate Tank #30 (90,484 gallons, Installed before 03/24/67)

Sodium Silicate Tank #31 (90,484 gallons, Installed before 03/24/67)

Sodium Silicate Tank #34 (421,058 gallons, Installed before 03/24/67)
Sodium Silicate Tank #35 (4,500,000 lb (liquid), Installed before 03/24/67)
Sodium Silicate Tank #38 (309,677 gallons, Installed before 03/24/67)
Fill Tank (liquid)
Truck Loadout of Silicate (liquid)
Tank Car Loadout of Silicate (liquid)
No. 2 Fuel Oil Aboveground Storage Tank (46,900 gallons, Installed 1926)
Natural Gas Space Heaters (0.27 MMBtu/hr (total))

Silica Gel Production

Product Refeed Station
Sodium Silicate Storage Tank (liquid)
Magnesium Sulfate Storage Tank (liquid)
Sulfuric Acid Aboveground Storage Tank (8,311 gallons, Installed 1994)
Silica Gel Production Natural Gas Space Heaters (0.27 MMBtu/hr (total), Installed 1993)
Silica Gel Production Natural Gas/Propane Boiler (8.4 MMBtu/hr, Installed 1993)

II. Plant Wide Emission Limitations

The installation shall comply with each of the following emission limitations. Consult the appropriate sections in the Code of Federal Regulations (CFR) and Code of State Regulations (CSR) for the full text of the applicable requirements. All citations, unless otherwise noted, are to the regulations in effect as of the date that this permit is issued.

Permit Condition PW001

10 CSR 10-6.220 Restriction of Emission of Visible Air Contaminants

Emission Limitation:

- 1) No owner or other person shall cause or permit emissions to be discharged into the atmosphere from any source in the St. Louis metropolitan area any visible emissions with an opacity greater than 20 percent.
- 2) Exception:
 - a) Existing sources in the St. Louis metropolitan area that are not incinerators and emit less than twenty-five (25) pounds per hour (lbs/hr) of particulate matter shall be limited to 40 percent opacity.
 - b) A person may discharge into the atmosphere from any source of emissions for a period(s) aggregating not more than six (6) minutes in any 60 minutes air contaminants with an opacity up to 40 percent.

Monitoring:

- 1) The permittee shall conduct opacity readings on the emission unit(s) using the procedures contained in U.S. EPA Test Method 22. At a minimum, the observer should be trained and knowledgeable about the effects on visibility of emissions caused by background contrast, ambient lighting, observer position relative to lighting, wind and the presence of uncombined water. Readings are only required when the emission unit(s) is operating and when the weather conditions allow. If no visible or other significant emissions are observed using these procedures, then no further observations would be required. For emission units with visible emissions perceived or believed to exceed the applicable opacity standard, the source representative would then conduct a Method 9 observation.
- 2) The following monitoring schedule must be maintained:
 - a) Observations must be made once per month. If a violation is noted, then
 - b) Weekly observations shall be conducted for a minimum of eight (8) consecutive weeks. Should no violation of this regulation be observed during this period then monitoring reverts to monthly monitoring.

Recordkeeping:

- 1) The permittee shall maintain records of all observation results (see Attachment A), noting:
 - a) Whether any air emissions (except for water vapor) were visible from the emission units,
 - b) All emission units from which visible emissions occurred, and
 - c) Whether the visible emissions were normal for the process.
- 2) The permittee shall maintain records of any Method 9 test performed in accordance with this permit condition. (See Attachment B)

Reporting:

- 1) The permittee shall report to the Air Pollution Control Program Enforcement Section, P.O. Box 176, Jefferson City, MO 65102, no later than ten days after the permittee determined using the Method 9 test that the emission unit(s) exceeded the opacity limit.
- 2) Reports of any deviations from monitoring, recordkeeping and reporting requirements of this permit condition shall be submitted annually in the annual compliance certification and monitoring report, as required by Section V of this permit.

III. Emission Unit Specific Emission Limitations

The installation shall comply with each of the following emission limitations. Consult the appropriate sections in the Code of Federal Regulations (CFR) and Code of State Regulations (CSR) for the full text of the applicable requirements. All citations, unless otherwise noted, are to the regulations in effect as of the date that this permit is issued.

EP1 - Sand Storage Tank		
Emission Unit	Description	2011 EIQ Reference #
EP1	Sand storage tank with fabric filter. Installed before 03/24/1967	EP1

<p>Permit Condition EP1-001</p> <p>10 CSR 10-6.400 Restriction of Emission of Particulate Matter from Industrial Processes</p>
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Emission Limitation:

- 1) The permittee shall not emit particulate matter in excess of 40.85 pounds per hour (lb/hr) from the sand storage tank.
- 2) The concentration of particulate matter in the exhaust gases shall not exceed 0.30 grain per standard cubic foot (gr/scf).

Monitoring/Recordkeeping/Reporting:

Not required (See Statement of Basis).

EP3 - Sodium Silicate Melting & Regenerating Furnace		
Emission Unit	Description	2011 EIQ Reference #
EP3	32.7 MMBtu/hr direct-fired natural gas (with Fuel Oil No. 2 backup) furnace used to melt sand and soda ash to form sodium silicate. No control. MDHR = 8.3 tons per hour glass production. Installed 1926. Rebuilt October 2011 with no throughput increase.	EP3

<p>Permit Condition EP3-001</p> <p>10 CSR 10-5.510 Control of Emission of Nitrogen Oxides - RACT Plan</p>

Emission Limitation:

The permittee shall not exceed a thirty (30)-day rolling average oxygen (O₂) concentration of 3.0 percent by volume on a dry basis.

Equipment and Operation Parameters:

The permittee shall install, maintain, calibrate and operate a continuous O₂ analyzer sampling from the glass furnace exhaust prior to the flow induction device.

Monitoring/Recordkeeping:

- 1) The permittee shall calculate an average concentration each furnace operating hour from at least two (2) data points during each furnace operating cycle. These data points shall be taken after the burner

has stabilized and is at normal operating conditions. Reasonable downtime shall be allowed for analyzer calibration and maintenance.

- 2) The permittee shall record all such deviations in the furnace logbook, along with the corrective action measures taken to address the deviation.

Reporting:

The permittee shall report any deviations/exceedances of this permit condition using the semi-annual monitoring report and annual compliance certification to Air Pollution Control Enforcement Section, P.O. Box 176, Jefferson City, MO 65102, as required by 10 CSR 10-6.065(6)(C)1.C.(III).

Permit Condition EP3-002

10 CSR 10-6.260 Restriction of Emission of Sulfur Compounds

Emission Limitation:

When Fuel Oil No. 2 is used as a backup fuel, the permittee shall comply with the following:

- 1) Emissions from any existing or new source operation shall not contain more than 500 parts per million by volume (500 ppmv) of sulfur dioxide.
- 2) Stack gasses shall not contain more than 35 milligrams (35 mg) per cubic meter of sulfuric acid or sulfur trioxide or any combination of those gases averaged on any consecutive three-hour time period.
- 3) No person shall cause or permit the emission of sulfur compounds from any source which causes or contributes to concentrations exceeding those specified in 10 CSR 10-6.010 Ambient Air Quality Standards. [10 CSR 10-6.260(3)(b) & 10 CSR 10-6.010 Ambient Air Quality Standards]¹

Operational Limitation:

The furnace shall be limited to burning pipeline grade natural gas and fuel oil with a sulfur content of no more than 0.5 percent by weight sulfur. The fuel oils known to be less than 0.5 percent by weight sulfur per Chapter 414 RSMo, Section 414.032, ASTM D396 - Table 1 and ASTM D975 - Table 1, are Fuel Oil No. 1 and No. 2 and diesel fuel oil Grade Low Sulfur No. 1-D, Grade Low Sulfur No. 2-D. However, the unit is not limited to the known fuel oils listed, above, but limited to fuel oils based solely on having a percent sulfur by weight content of 0.5 percent or less.

Monitoring/Recordkeeping:

The permit shall maintain documentation supporting the fuel used is pipeline grade natural gas and records on the premises of the fuel suppliers analysis of distillate oil fired in the furnace which shows weight percentage of sulfur in the fuel.

Reporting:

The permittee shall report any deviations/exceedances of this permit condition using the semi-annual monitoring report and annual compliance certification to the Air Pollution Control Program Enforcement Section, P.O. Box 176, Jefferson City, MO 65102, as required by Section V of this permit.

¹ 10 CSR 10-6.260(3)(B) is state-only requirement.

Permit Condition EP3-003

10 CSR 10-6.400 Restriction of Emission of Particulate Matter from Industrial Processes

Emission Limitation:

- 1) The permittee shall not emit particulate matter in excess of 16.93 lb/hr from the sodium silicate melting and regenerating furnace.
- 2) The concentration of particulate matter in the exhaust gases shall not exceed 0.30 gr/scf.

Monitoring/Recordkeeping/Reporting:

Not required (See Statement of Basis).

EP4 – Vibratory Conveyor

Emission Unit	Description	2011 EIQ Reference #
EP4	Three (3) vibrating glass conveyors with fabric filter.	EP4

Permit Condition EP4-001

10 CSR 10-6.400 Restriction of Emission of Particulate Matter from Industrial Processes

Emission Limitation:

- 1) The permittee shall not emit particulate matter in excess of 16.93 lb/hr from the vibratory conveyor.
- 2) The concentration of particulate matter in the exhaust gases shall not exceed 0.30 gr/scf.

Monitoring/Recordkeeping/Reporting:

Not required (See Statement of Basis).

EP5 – Dissolver Tanks

Emission Unit	Description	2011 EIQ Reference #
EP5	Three (3) dissolving tanks with scrubber.	EP5

Permit Condition EP5-001

10 CSR 10-6.400 Restriction of Emission of Particulate Matter from Industrial Processes

Emission Limitation:

- 1) The permittee shall not emit particulate matter in excess of 40.85 lb/hr from the dissolver tanks.
- 2) The concentration of particulate matter in the exhaust gases shall not exceed 0.30 gr/scf.

Monitoring/Recordkeeping/Reporting:

Not required (See Statement of Basis).

EP6 – Boiler #1		
Emission Unit	Description	2011 EIQ Reference #
EP6	Boiler #1 -- Natural gas fired 11.2 million British thermal units per hour (MMBtu/hr) boiler with fuel oil as a back-up fuel. No control. Installed 1984.	EP6

Permit Condition EP6-001
10 CSR 10-6.260 Restriction of Emission of Sulfur Compounds

Emission Limitation:

When Fuel Oil No. 2 is used as a backup fuel, the permittee shall not cause or permit the emission of sulfur compounds from any source which causes or contributes to concentrations exceeding those specified in 10 CSR 10-6.010 Ambient Air Quality Standards. [10 CSR 10-6.260(3)(b) & 10 CSR 10-6.010 Ambient Air Quality Standards]²

Operational Limitation:

The boiler shall be limited to burning pipeline grade natural gas and fuel oil with a sulfur content of no more than 0.5 percent by weight sulfur. The fuel oils known to be less than 0.5 percent by weight sulfur per Chapter 414 RSMo, Section 414.032, ASTM D396 - Table 1 and ASTM D975 - Table 1, are Fuel Oil No. 1 and No. 2 and diesel fuel oil Grade Low Sulfur No. 1-D, Grade Low Sulfur No. 2-D. However, the unit is not limited to the known fuel oils listed, above, but limited to fuel oils based solely on having a percent sulfur by weight content of 0.5 percent or less.

Monitoring/Recordkeeping:

The permit shall maintain documentation supporting the fuel used is pipeline grade natural gas and records on the premises of the fuel suppliers analysis of distillate oil fired in the boiler which shows weight percentage of sulfur in the fuel.

Reporting:

The permittee shall report any deviations/exceedances of this permit condition using the semi-annual monitoring report and annual compliance certification to the Air Pollution Control Program Enforcement Section, P.O. Box 176, Jefferson City, MO 65102, as required by Section V of this permit.

EP12 – Boiler #2		
Emission Unit	Description	2011 EIQ Reference #
EP12	Boiler #2 -- Natural gas fired 15.3 MMBtu/hr boiler with fuel oil as a back-up fuel. No control. Installed 2000.	EP12

Permit Condition EP12-001
10 CSR 10-6.6.060 Construction Permits Required
City of St. Louis of Air Pollution Control Program Construction Permit No. 99-08-058

² 10 CSR 10-6.260(3)(B) is state-only requirement.

Emission Limitation:

- 1) Fuel oil No. 2 usage shall not exceed 504 hours (21 days) in any consecutive twelve (12) month period.
- 2) Natural gas usage shall not exceed 131.4 million cubic feet in any consecutive twelve (12) month period.

Operational Limitation:

The boiler shall be limited to burning pipeline grade natural gas and fuel oil with a sulfur content of no more than 0.5 percent by weight sulfur. The fuel oils known to be less than 0.5 percent by weight sulfur per Chapter 414 RSMo, Section 414.032, ASTM D396 - Table 1 and ASTM D975 - Table 1, are Fuel Oil No. 1 and No. 2 and diesel fuel oil Grade Low Sulfur No. 1-D, Grade Low Sulfur No. 2-D. However, the unit is not limited to the known fuel oils listed, above, but limited to fuel oils based solely on having a percent sulfur by weight content of 0.5 percent or less.

Monitoring/Recordkeeping:

- 1) The permit shall maintain documentation supporting the fuel used is pipeline grade natural gas and records on the premises of the fuel suppliers analysis of distillate oil fired in the boiler which shows weight percentage of sulfur in the fuel.
- 2) The permittee shall record the monthly and running 12-month totals of each fuel usage (see Attachments C).

Reporting:

- 1) The permittee shall report to the Air Pollution Control Program Enforcement Section, P.O. Box 176, Jefferson City, MO 65102, no later than ten (10) days after the permittee determined that the emission unit exceeded the emission limitation(s) listed above.
- 2) Reports of any deviations from monitoring, recordkeeping and reporting requirements of this permit condition using the semi-annual monitoring report and annual compliance certification to the Air Pollution Control Program Enforcement Section, P.O. Box 176, Jefferson City, MO 65102, as required by 10 CSR 10-6.065(6)(C)1.C.(III).

Permit Condition EP12-002

**10 CSR 10-6.070 New Source Performance Regulations
40 CFR 60 Subpart Dc Standards of Performance for Small Industrial-Commercial-
Institutional Steam Generating Units**

Emission Limitation:

- 1) On and after the date on which the initial performance test is completed or required to be completed under §60.8, whichever date comes first, no owner or operator of an affected facility that combusts oil shall cause to be discharged into the atmosphere from that affected facility any gases that contain SO₂ in excess of 215 ng/J (0.50 lb/MMBtu) heat input from oil; or, as an alternative, no owner or operator of an affected facility that combusts oil shall combust oil in the affected facility that contains greater than 0.5 weight percent sulfur. [§60.42c (d)]
- 2) For distillate oil-fired boilers, compliance with the emission limits or fuel oil sulfur limits may be determined based on a certification from the fuel supplier, as described under §60.48c(f)(1). [§60.42c (h) & (h)(1)]
- 3) The SO₂ emission limits and fuel oil sulfur limits apply at all times, including periods of startup, shutdown, and malfunction. [§60.42c (i)]

Monitoring/Recordkeeping:

- 1) For distillate oil: Records of fuel supplier certification.
 The Fuel Supplier Certification shall include the name of the oil supplier; and a statement from the oil supplier that the oil complies with the specifications for distillate oil (Distillate oil means fuel oil that complies with the specifications for Fuel Oil No. 1 or 2, as defined by the American society for Testing and Materials in ASTM D396-78, 89, 90, 92, 96, or 98 “Standard Specification of Fuel Oils”). [§60.48c(f)(1) & §60.41c – Definition]
- 2) The permittee shall record and maintain records of the amounts of each fuel combusted during each calendar month (see Attachment C). [§60.48c(g)(2)]

Reporting:

The permittee shall submit records of fuel supplier certification with a certified statement signed by the owner or operator of the affected facility that the records of fuel supplier certification submitted represented all of the fuel combusted during the reporting period. The reporting period for the reports required is each six-month Period. All reports including calendar dates covered in the reporting period shall be submitted to the Air Pollution Control Program, Enforcement Section, P.O. Box 176, Jefferson City, MO 65102. All reports shall be postmarked by the 30th day following the end of the reporting period. [§60.48c(d), (e)(1), (e)(11) & (j)]

EP102 through EP104 – Silica Gel Production		
Emission Unit	Description	2011 EIQ Reference #
EP102	Equipment/activities associated with Silica Gel Production include the following Mill and Mill Furnace – BEPEX 9300091 mill with Dayco LV burner; Mikropul#288-12-100-TRH Baghouse.	EP102
EP103	Product Bagging Unit – Premier Tech DB770S; Mikropul 164s-b-20 Baghouse	EP103
EP104	Product Silo – Kennedy Silo with Emtrol cyclone; AIS Vacuum Filter Receiver. The baghouse is inherent parts of the process.	EP104

<p>Permit Condition EP102-001 and EP103-001</p> <p>10 CSR 10-6.6.060 Construction Permits Required</p> <p>City of St. Louis of Air Pollution Control Program Construction Permit No. 10-10-019</p>

Emission Limitation:

- 1) Emissions of PM₁₀ from EP102 and EP103 combined shall not exceed 15 tons in any consecutive 12-month period. [Construction Permit 10-10-019, Section II: Limitations A]
- 2) Emissions of PM_{2.5} from EP102 and EP103 combined shall not exceed 10 tons in any consecutive 12-month period. [Construction Permit 10-10-019, Section II: Limitations B]

Monitoring:

[Construction Permit 10-10-019, Section III: Conditions A, B, C and D]

- 1) The permittee shall operate the associated control device(s) whenever any source equipment modified and/or operational under the authority of this permit is operating. The emission units, emission control devices and monitoring instrumentation shall be operated, calibrated and maintained according to manufacturer’s specifications and/or good engineering practices.

- 2) The permittee shall monitor the operational parameters of the control devices used to reduce emissions from the Silica Gel production unit as specified in the table below. The acceptable range of each monitored parameter will be based on the recommended range of acceptable operation from the manufacturer.

Control Device Monitoring Requirements					
Control Device	Equipment Controlled	Monitored Parameter	Units	Frequency	Acceptable Range
Micropul Baghouse for EP-102	Silica Gel Mill	Pressure Drop	Inches of water column	Daily	0.1 – 7.0 †
Durant Baghouse for EP-103	Silica Gel Product Bagging	Pressure Drop	Inches of water column	Daily	0.1 – 7.0 †

† This range is based on based on the values recorded during the most recent approved performance test where compliance was demonstrated.

- 3) The permittee shall inspect all components of the air pollution control equipment not subject to wear or plugging, including structural components, housing, ducts and hoods, every six months.
- 4) All pipes and ducts used to transfer product and capture and collect air and air contaminants from source equipment constructed under the authority of this permit shall be enclosed, hard piped and sealed to achieve 100 percent capture of the emissions from the source equipment.

Recordkeeping:

[Construction Permit 10-10-019, Section IV: Recordkeeping A, B, C, D, G and H]

- 1) The permittee shall maintain production and processing records sufficient to calculate monthly emissions of PM₁₀ and PM_{2.5} from the source equipment modified and/or operated under the authority of this permit, with monthly emissions and total emissions of PM₁₀ and PM_{2.5} for every consecutive 12-month period (see Attachment F).
- 2) Maintenance records for control equipment including filter changes, maintenance, and upset conditions shall be kept (see Attachment D).
- 3) The permittee shall maintain records of the control device operating parameters specified in Permit Condition III.B. once every calendar day when the source equipment is in operation. The permittee shall record the time and date of each parameter reading and whether or not the recorded parameter was within the range specified (see Attachment E).
- 4) The permittee shall maintain a record of any equipment malfunctions (see Attachment D).
- 5) The permittee shall retain on-site a copy of the most recent source test results demonstrating compliance with emission limits in this permit at all times.
- 6) All records shall be kept for a minimum of 60 months and shall be made available to representatives available to representatives of Missouri Department of Natural Resources Air Pollution Control Program and/or US Environmental Protection Agency (EPA) upon request.

Reporting:

The permittee shall report to the Air Pollution Control Program Enforcement Section, P.O. Box 176, Jefferson City, MO 65102, no later than ten (10) days after the permittee has knowledge of any deviation from or exceedance of the limits as outlined in this permit condition.

Permit Condition EP102-002

**10 CSR 10-6.400 Restriction of Emission of Particulate Matter from Industrial Processes
40 CFR Part 64 Compliance Assurance Monitoring (CAM)**

Emission Limitation:

- 1) The permittee shall not emit particulate matter in excess of 3.71 lb/hr from EP102.
- 2) No person shall cause, allow or permit the emission of particulate matter from any source in a concentration in excess of 0.30 grain per standard cubic foot of exhaust gases.

Monitoring:

- 1) The permittee is subject to the CAM plan contained in Attachment G.
- 2) *CAM Compliance Indicators:* The following CAM Indicators shall be used to monitor the control device (baghouse):
 - a) Visible Emissions
 - i) Visible emissions from the baghouse stack exhaust shall be monitored using EPA Reference Method 22-like procedures on a daily basis to ensure no visible emissions during the operation of this unit. The permittee is only required to take readings when the emission unit is operating and when the weather conditions allow.
 - b) Pressure Drop
 - i) The permittee shall check and document the baghouse pressure drop daily. The pressure drop across the baghouse shall be maintained within the range of 0.1 to 7.0 inches of water (H₂O).
- 3) *CAM Compliance Indicator Range:* An excursion is defined as either the presence of visible emissions or as a pressure drop less than 0.1 inch H₂O or a pressure drop greater than 7.0 inches H₂O. An excursion of either indicator constitutes an excursion. If visible emissions are present when the pressure drop is within its specified indicator range and no baghouse problems are identified as the cause, the pressure drop indicator range shall be re-evaluated by PQ Corporation. Excursions trigger an inspection, corrective action, and need to be reported in the next Semi-annual Monitoring Report; if an excursion results in excess emissions exceeding one hour, PQ Corporation may elect to file a startup, shutdown, and malfunction assertion under 10 CSR 10-6.050 if appropriate to the situation.
- 4) *Continued operation:* Except for, as applicable, monitoring malfunctions, associated repairs, and required quality assurance or control activities, the permittee shall collect data at all required intervals when the emission unit is operating. Data recorded during monitoring malfunctions, associated repairs, and required quality assurance or control activities shall not be used for purposes of part 64. The permittee shall use all the data collected during all other periods in assessing the operation of the control device and associated control system. A monitoring malfunction is any sudden, infrequent, not reasonably preventable failure of the monitoring to provide valid data. Monitoring failures that are caused in part by poor maintenance or careless operation are not malfunctions. [§64.7(c)]
- 5) *Response to exceedances:* [§64.7(d)]
 - a) Upon detecting an exceedance, the permittee shall restore operation of the emission unit (including the control device and associated capture system) to its normal or usual manner of operation as expeditiously as practicable in accordance with good air pollution control practices for minimizing emissions. The response shall include minimizing the period of any startup, shutdown or malfunction and taking any necessary corrective actions to restore normal operation and prevent the likely recurrence of the cause of an exceedance (other than those caused by

excused startup or shutdown conditions). Such actions may include initial inspection and evaluation, recording that operations returned to normal without operator action (such as through response by a computerized distribution control system), or any necessary follow-up actions to return operation to within the indicator range, designated condition, or below the applicable emission limitation or standard, as applicable. [§64.7(d)(1)]

- b) Determination of whether the permittee has used acceptable procedures in response to an excursion or exceedance will be based on information available, which may include but is not limited to, monitoring results, review of operation and maintenance procedures and records, and inspection of the control device, associated capture system, and the process. [§64.7(d)(2)]

Recordkeeping:

1) *General Recordkeeping Requirements:*

- a) The permittee shall comply with the recordkeeping requirements specified in §70.6(a)(3)(ii). The permittee shall maintain records of monitoring data, monitor performance data, corrective actions taken, any written quality improvement plan required pursuant to §64.8 and any activities undertaken to implement a quality improvement plan, and other supporting information required to be maintained under part 64 (such as data used to document the adequacy of monitoring, or records of monitoring maintenance or corrective actions). [§64.9(b)(1)]
 - b) Instead of paper records, the permittee may maintain records on alternative media, such as microfilm, computer files, magnetic tape disks, or microfiche, provided that the use of such alternative media allows for expeditious inspection and review, and does not conflict with other applicable recordkeeping requirements. [§64.9(b)(2)]
- 2) All records shall be maintained for five years.
 - 3) These records shall be made available immediately for inspection to the Department of Natural Resources' personnel upon their verbal request and presentation of identification.

Reporting:

- 1) *General Reporting Requirements:* The permittee shall submit semi-annual monitoring certified by a responsible official using the semi-annual monitoring report and annual compliance certification to the Air Pollution Control Program Enforcement Section, P.O. Box 176, Jefferson City, MO 65102, as required by 10 CSR 10-6.065(6)(C)1.C.(III). The report shall include, at a minimum, the following information, as applicable: [§64.9(a)(1) & (2)]
 - a) All instances of deviations from permit requirements must be clearly identified;
 - b) Prompt reporting of deviations from permit requirements, including those attributable to upset conditions as defined in the permit, the probable cause of such deviations, and any corrective actions or preventive measures taken;
 - c) Summary information on the number, duration and cause (including unknown cause, if applicable) of excursions or exceedances, as applicable, and the corrective actions taken; [§64.9(a)(2)(i)]
 - d) Summary information on the number, duration and cause (including unknown cause, if applicable) for monitor downtime incidents (other than downtime associated with zero and span or other daily calibration checks, if applicable); and [§64.9(a)(2)(ii)]
 - e) A description of the actions taken to implement a QIP during the reporting period as specified in 40 CFR 64.8. Upon completion of a QIP, the permittee shall include in the next summary report documentation that the implementation of the plan has been completed and reduced the likelihood of similar levels of excursions or exceedances occurring. [§64.9(a)(2)(iii)].
- 2) *Documentation of need for improved monitoring:* If the permittee identifies a failure to achieve compliance with this permit condition for which the approved monitoring did not provide an

indication of an exceedance while providing valid data, or the results of compliance or performance testing document a need to modify the existing indicator ranges or designated conditions, the permittee shall promptly notify the Air Pollution Control Program and, if necessary, submit a proposed modification to the part 70 permit to address the necessary monitoring changes. Such a modification may include, but is not limited to, reestablishing indicator ranges or designated conditions, modifying the frequency of conducting monitoring and collecting data, or the monitoring of additional parameters. [§64.7(e)]

- 3) The permittee shall report to the Air Pollution Control Program, Enforcement Section, P. O. Box 176, Jefferson City, MO 65102, no later than ten (10) days after any deviations/exceedance of the Emission Limitation.

Permit Condition EP103-002

10 CSR 10-6.400 Restriction of Emission of Particulate Matter from Industrial Processes

Emission Limitation:

- 1) The permittee shall not emit particulate matter in excess of 3.71 lb/hr from EP103.
- 2) No person shall cause, allow or permit the emission of particulate matter from any source in a concentration in excess of 0.30 grain per standard cubic foot of exhaust gases.

Monitoring/Recordkeeping/Reporting:

As required by Permit Condition EP103-001.

Permit Condition EP104-001

10 CSR 10-6.400 Restriction of Emission of Particulate Matter from Industrial Processes

Emission Limitation:

- 1) The permittee shall not emit particulate matter in excess of 3.71 lb/hr from EP104.
- 2) No person shall cause, allow or permit the emission of particulate matter from any source in a concentration in excess of 0.30 grain per standard cubic foot of exhaust gases.

Monitoring/Recordkeeping/Reporting:

Not required (See Statement of Basis).

IV. Core Permit Requirements

The installation shall comply with each of the following regulations or codes. Consult the appropriate sections in the Code of Federal Regulations (CFR), the Code of State Regulations (CSR), and local ordinances for the full text of the applicable requirements. All citations, unless otherwise noted, are to the regulations in effect as of the date that this permit is issued. The following is only an excerpt from the regulation or code, and is provided for summary purposes only.

City of St. Louis Ordinance 68657, §16 Open Burning Restrictions

- 1) No person shall cause, suffer, allow or permit the open burning of refuse.
- 2) No person shall conduct, cause or permit the conduct of a salvage operation by open burning.
- 3) No person shall conduct, cause or permit the disposal of trade waste by open burning.
- 4) No person shall cause or permit the open burning of leaves, trees or the byproducts therefrom, grass, or other vegetation.
- 5) It shall be prima-facie evidence that the person who owns or controls property on which open burning occurs, has caused or permitted said open burning.

10 CSR 10-6.050 Start-up, Shutdown and Malfunction Conditions

- 1) In the event of a malfunction, which results in excess emissions that exceed one hour, the permittee shall submit to the director within two business days, in writing, the following information:
 - a) Name and location of installation;
 - b) Name and telephone number of person responsible for the installation;
 - c) Name of the person who first discovered the malfunction and precise time and date that the malfunction was discovered.
 - d) Identity of the equipment causing the excess emissions;
 - e) Time and duration of the period of excess emissions;
 - f) Cause of the excess emissions;
 - g) Air pollutants involved;
 - h) Best estimate of the magnitude of the excess emissions expressed in the units of the applicable requirement and the operating data and calculations used in estimating the magnitude;
 - i) Measures taken to mitigate the extent and duration of the excess emissions; and
 - j) Measures taken to remedy the situation that caused the excess emissions and the measures taken or planned to prevent the recurrence of these situations.
- 2) The permittee shall submit the Paragraph 1 information list to the director in writing at least ten days prior to any maintenance, start-up or shutdown, which is expected to cause an excessive release of emissions that exceed one hour. If notice of the event cannot be given ten days prior to the planned occurrence, it shall be given as soon as practicable prior to the release. If an unplanned excess release of emissions exceeding one hour occurs during maintenance, start-up or shutdown, the director shall be notified verbally as soon as practical during normal working hours and no later than the close of business of the following working day. A written notice shall follow within ten working days.
- 3) Upon receipt of a notice of excess emissions issued by an agency holding a certificate of authority under Section 643.140, RSMo, the permittee may provide information showing that the excess emissions were the consequence of a malfunction, start-up or shutdown. The information, at a minimum, should be the Paragraph 1 list and shall be submitted not later than 15 days after receipt of the notice of excess emissions. Based upon information submitted by the permittee or any other

pertinent information available, the director or the commission shall make a determination whether the excess emissions constitute a malfunction, start-up or shutdown and whether the nature, extent and duration of the excess emissions warrant enforcement action under Section 643.080 or 643.151, RSMo.

- 4) Nothing in this rule shall be construed to limit the authority of the director or commission to take appropriate action, under Sections 643.080, 643.090 and 643.151, RSMo to enforce the provisions of the Air Conservation Law and the corresponding rule.
- 5) Compliance with this rule does not automatically absolve the permittee of liability for the excess emissions reported.

10 CSR 10-6.060 Construction Permits Required

The permittee shall not commence construction, modification, or major modification of any installation subject to this rule, begin operation after that construction, modification, or major modification, or begin operation of any installation which has been shut down longer than five years without first obtaining a permit from the permitting authority.

10 CSR 10-6.065 Operating Permits

The permittee shall file a complete application for renewal of this operating permit at least six months before the date of permit expiration. In no event shall this time be greater than eighteen months. [10 CSR 10-6.065(6)(B)1.A(V)] The permittee shall retain the most current operating permit issued to this installation on-site. [10 CSR 10-6.065(6)(C)1.C(II)] The permittee shall immediately make such permit available to any Missouri Department of Natural Resources personnel upon request. [10 CSR 10-6.065(6)(C)3.B]

10 CSR 10-6.080 Emission Standards for Hazardous Air Pollutants and 40 CFR Part 61 Subpart M National Emission Standard for Asbestos

- 1) The permittee shall follow the procedures and requirements of 40 CFR Part 61, Subpart M for any activities occurring at this installation which would be subject to provisions for 40 CFR Part 61, Subpart M, National Emission Standard for Asbestos.
- 2) The permittee shall conduct monitoring to demonstrate compliance with registration, certification, notification, and Abatement Procedures and Practices standards as specified in 40 CFR Part 61, Subpart M.

10 CSR 10-6.100 Alternate Emission Limits

Proposals for alternate emission limitations shall be submitted on Alternate Emission Limits Permit forms provided by the department. An installation owner or operator must obtain an Alternate Emission Limits Permit in accordance with 10 CSR 10-6.100 before alternate emission limits may become effective.

10 CSR 10-6.110 Submission of Emission Data, Emission Fees and Process Information

- 1) The permittee shall submit full emissions report either electronically via MoEIS, which requires Form 1.0 signed by an authorized company representative, or on Emission Inventory Questionnaire (EIQ) paper forms on the frequency specified in this rule and in accordance with the requirements outlined in this rule. Alternate methods of reporting the emissions, such as spreadsheet file, can be submitted for approval by the director.
- 2) The permittee may be required by the director to file additional reports.

- 3) Public Availability of Emission Data and Process Information. Any information obtained pursuant to the rule(s) of the Missouri Air Conservation Commission that would not be entitled to confidential treatment under 10 CSR 10-6.210 shall be made available to any member of the public upon request.
- 4) The permittee shall pay an annual emission fee per ton of regulated air pollutant emitted according to the schedule in the rule. This fee is an emission fee assessed under authority of RSMo. 643.079.
- 5) The fees shall be payable to the Department of Natural Resources and shall be accompanied by the emissions report.
- 6) The permittee shall complete required reports on state supplied EIQ forms or electronically via MoEIS. Alternate methods of reporting the emissions can be submitted for approval by the director. The reports shall be submitted to the director by April 1 after the end of each reporting year. If the full emissions report is filed electronically via MoEIS, this due date is extended to May 1.
- 7) The reporting period shall end on December 31 of each calendar year. Each report shall contain the required information for each emission unit for the twelve (12)-month period immediately preceding the end of the reporting period.
- 8) The permittee shall collect, record and maintain the information necessary to complete the required forms during each year of operation of the installation.

10 CSR 10-6.130 Controlling Emissions During Episodes of High Air Pollution Potential

This rule specifies the conditions that establish an air pollution alert (yellow/orange/red/purple), or emergency (maroon) and the associated procedures and emission reduction objectives for dealing with each. The permittee shall submit an appropriate emergency plan if required by the Director.

10 CSR 10-6.150 Circumvention

The permittee shall not cause or permit the installation or use of any device or any other means which, without resulting in reduction in the total amount of air contaminant emitted, conceals or dilutes an emission or air contaminant which violates a rule of the Missouri Air Conservation Commission.

10 CSR 10-6.170

Restriction of Particulate Matter to the Ambient Air Beyond the Premises of Origin

- 1) The permittee shall not cause or allow to occur any handling, transporting or storing of any material; construction, repair, cleaning or demolition of a building or its appurtenances; construction or use of a road, driveway or open area; or operation of a commercial or industrial installation without applying reasonable measures as may be required to prevent, or in a manner which allows or may allow, fugitive particulate matter emissions to go beyond the premises of origin in quantities that the particulate matter may be found on surfaces beyond the property line of origin. The nature or origin of the particulate matter shall be determined to a reasonable degree of certainty by a technique proven to be accurate and approved by the director.
- 2) The permittee shall not cause nor allow to occur any fugitive particulate matter emissions to remain visible in the ambient air beyond the property line of origin.
- 3) Should it be determined that noncompliance has occurred, the director may require reasonable control measures as may be necessary. These measures may include, but are not limited to, the following:
 - a) Revision of procedures involving construction, repair, cleaning and demolition of buildings and their appurtenances that produce particulate matter emissions;
 - b) Paving or frequent cleaning of roads, driveways and parking lots;
 - c) Application of dust-free surfaces;

- d) Application of water; and
- e) Planting and maintenance of vegetative ground cover.

10 CSR 10-6.180 Measurement of Emissions of Air Contaminants

- 1) The director may require any person responsible for the source of emission of air contaminants to make or have made tests to determine the quantity or nature, or both, of emission of air contaminants from the source. The director may specify testing methods to be used in accordance with good professional practice. The director may observe the testing. All tests shall be performed by qualified personnel.
- 2) The director may conduct tests of emissions of air contaminants from any source. Upon request of the director, the person responsible for the source to be tested shall provide necessary ports in stacks or ducts and other safe and proper sampling and testing facilities, exclusive of instruments and sensing devices as may be necessary for proper determination of the emission of air contaminants.
- 3) The director shall be given a copy of the test results in writing and signed by the person responsible for the tests.

10 CSR 10-5.040 Use of Fuel in Hand-Fired Equipment Prohibited

It shall be unlawful to operate any hand-fired fuel-burning equipment in the St. Louis, Missouri metropolitan area. This regulation shall apply to all fuel-burning equipment including, but not limited to, furnaces, heating and cooking stoves and hot water furnaces. It shall not apply to wood-burning fireplaces and wood-burning stoves in dwellings, nor to fires used for recreational purpose, nor to fires used solely for the preparation of food by barbecuing. Hand-fired fuel-burning equipment is any stove, furnace, or other fuel-burning device in which fuel is manually introduced directly into the combustion chamber.

10 CSR 10-5.060 Refuse Not to be Burned in Fuel Burning Installations (Contained in State Implementation Plan)

No person shall burn or cause or permit the burning of refuse in any installation which is designed for the primary purpose of burning fuel.

10 CSR 10-5.120 Information on Sales of Fuels to be Provided and Maintained

Every delivery of coal or residual fuel oil when first delivered to a consumer or wholesaler in the St. Louis metropolitan area must be accompanied by a ticket prepared in triplicate and containing at least the name and address of the seller and the buyer; the grade of fuel; ash content of coal, the source of the fuel, which must be an approved source, and such other information as the Air Conservation Commission may require. One copy of each ticket shall be kept by the person delivering the fuel and be retained for one year; one copy is to be given to the recipient of the fuel to be retained for one year; and, upon request, within 30 days after delivery of the fuel, the delivering party shall mail one copy to the Air Conservation Commission.

10 CSR 10-6.165 Restriction of Emission of Odors

This requirement is not federally enforceable.

No person may cause, permit or allow the emission of odorous matter in concentrations and frequencies or for durations that odor can be perceived when one volume of odorous air is diluted with seven volumes of odor-free air for two separate trials not less than 15 minutes apart within the period of one hour. This odor evaluation shall be taken at a location outside of the installation's property boundary.

10 CSR 10-5.240 Additional Air Quality Control Measures May be Required When Sources Are Clustered in a Small Land Area

The Air Conservation Commission may prescribe more restrictive air quality control requirements that are more restrictive and more extensive than provided in regulations of general application for:

- 1) Areas in which there are one or more existing sources and/or proposed new sources of particulate matter in any circular area with a diameter of two miles (including sources outside metropolitan area) from which the sum of particulate emissions allowed from these sources by regulations of general application are or would be greater than 2000 tons per year or 500 pounds per hour.
- 2) Areas in which there are one or more existing sources and/or proposed new sources of sulfur dioxide in any circular area with a diameter of two miles from which the sum of sulfur dioxide emissions from these sources allowed by regulations of general application are or would be greater than 1000 tons for any consecutive three months or 1000 pounds per hour.

10 CSR 10-6.250 Asbestos Abatement Projects – Certification, Accreditation, and Business Exemption Requirements

The permittee shall conduct all asbestos abatement projects within the procedures established for certification and accreditation by 10 CSR 10-6.250. This rule requires individuals who work in asbestos abatement projects to be certified by the Missouri Department of Natural Resources Air Pollution Control Program. This rule requires training providers who offer training for asbestos abatement occupations to be accredited by the Missouri Department of Natural Resources Air Pollution Control Program. This rule requires persons who hold exemption status from certain requirements of this rule to allow the department to monitor training provided to employees. Each individual who works in asbestos abatement projects must first obtain certification for the appropriate occupation from the department. Each person who offers training for asbestos abatement occupations must first obtain accreditation from the department. Certain business entities that meet the requirements for state-approved exemption status must allow the department to monitor training classes provided to employees who perform asbestos abatement.

Title VI – 40 CFR Part 82 Protection of Stratospheric Ozone

- 1) The permittee shall comply with the standards for labeling of products using ozone-depleting substances pursuant to 40 CFR Part 82, Subpart E:
 - a) All containers in which a class I or class II substance is stored or transported, all products containing a class I substance, and all products directly manufactured with a class I substance must bear the required warning statement if it is being introduced into interstate commerce pursuant to §82.106.
 - b) The placement of the required warning statement must comply with the requirements pursuant to §82.108.
 - c) The form of the label bearing the required warning statement must comply with the requirements pursuant to §82.110.
 - d) No person may modify, remove, or interfere with the required warning statement except as described in §82.112.
- 2) The permittee shall comply with the standards for recycling and emissions reduction pursuant to 40 CFR Part 82, Subpart F, except as provided for motor vehicle air conditioners (MVACs) in Subpart B:
 - a) Persons opening appliances for maintenance, service, repair, or disposal must comply with the required practices pursuant to §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 §82.158.
 - c) Persons performing maintenance, service, repair, or disposal of appliances must be certified by an approved technician certification program pursuant to §82.161.
 - d) Persons disposing of small appliances, MVACs, and MVAC-like appliances must comply with recordkeeping requirements pursuant to §82.166. ("MVAC-like" appliance as defined at §82.152).
 - e) Persons owning commercial or industrial process refrigeration equipment must comply with the leak repair requirements pursuant to §82.156.
 - f) Owners/operators of appliances normally containing 50 or more pounds of refrigerant must keep records of refrigerant purchased and added to such appliances pursuant to §82.166.
- 3) If the permittee manufactures, transforms, imports, or exports a class I or class II substance, the permittee is subject to all the requirements as specified in 40 CFR Part 82, Subpart A, Production and Consumption Controls.
 - 4) If the permittee performs a service on motor (fleet) vehicles when this service involves ozone-depleting substance refrigerant (or regulated substitute substance) in the motor vehicle air conditioner (MVAC), the permittee is subject to all the applicable requirements as specified in 40 CFR Part 82, Subpart B, Servicing of Motor Vehicle Air conditioners. The term "motor vehicle" as used in Subpart B does not include a vehicle in which final assembly of the vehicle has not been completed. The term "MVAC" as used in Subpart B does not include the air-tight sealed refrigeration system used as refrigerated cargo, or system used on passenger buses using HCFC-22 refrigerant.
 - 5) The permittee shall be allowed to switch from any ozone-depleting substance to any alternative that is listed in the Significant New Alternatives Program (SNAP) promulgated pursuant to 40 CFR Part 82, Subpart G, Significant New Alternatives Policy Program. *Federal Only - 40 CFR Part 82*

10 CSR 10-6.280 Compliance Monitoring Usage

- 1) The permittee is not prohibited from using the following in addition to any specified compliance methods for the purpose of submission of compliance certificates:
 - a) Monitoring methods outlined in 40 CFR Part 64;
 - b) Monitoring method(s) approved for the permittee pursuant to 10 CSR 10-6.065, "Operating Permits", and incorporated into an operating permit; and
 - c) Any other monitoring methods approved by the director.
- 2) Any credible evidence may be used for the purpose of establishing whether a permittee has violated or is in violation of any such plan or other applicable requirement. Information from the use of the following methods is presumptively credible evidence of whether a violation has occurred by a permittee:
 - a) Monitoring methods outlined in 40 CFR Part 64;
 - b) A monitoring method approved for the permittee pursuant to 10 CSR 10-6.065, "Operating Permits", and incorporated into an operating permit; and
 - c) Compliance test methods specified in the rule cited as the authority for the emission limitations.
- 3) The following testing, monitoring or information gathering methods are presumptively credible testing, monitoring, or information gathering methods:
 - a) Applicable monitoring or testing methods, cited in:
 - i) 10 CSR 10-6.030, "Sampling Methods for Air Pollution Sources";
 - ii) 10 CSR 10-6.040, "Reference Methods";

- iii) 10 CSR 10-6.070, "New Source Performance Standards";
- iv) 10 CSR 10-6.080, "Emission Standards for Hazardous Air Pollutants"; or
- b) Other testing, monitoring, or information gathering methods, if approved by the director, that produce information comparable to that produced by any method listed above.

V. General Permit Requirements

The installation shall comply with each of the following requirements. Consult the appropriate sections in the Code of Federal Regulations (CFR) and Code of State Regulations (CSR) for the full text of the applicable requirements. All citations, unless otherwise noted, are to the regulations in effect as of the date that this permit is issued,

10 CSR 10-6.065(6)(C)1.B Permit Duration

This permit is issued for a term of five years, commencing on the date of issuance. This permit will expire at the end of this period unless renewed.

10 CSR 10-6.065(6)(C)1.C General Recordkeeping and Reporting Requirements

- 1) Recordkeeping
 - a) All required monitoring data and support information shall be retained for a period of at least five years from the date of the monitoring sample, measurement, report or application.
 - b) Copies of all current operating and construction permits issued to this installation shall be kept on-site for as long as the permits are in effect. Copies of these permits shall be made immediately available to any Missouri Department of Natural Resources' personnel upon request.
- 2) Reporting
 - a) All reports shall be submitted to the Air Pollution Control Program, Enforcement Section, P.O. Box 176, Jefferson City, MO 65102.
 - b) The permittee shall submit a report of all required monitoring by:
 - i) October 1st for monitoring which covers the January through June time period, and
 - ii) April 1st for monitoring which covers the July through December time period.
 - iii) Exception. Monitoring requirements which require reporting more frequently than semi-annually shall report no later than 30 days after the end of the calendar quarter in which the measurements were taken.
 - c) Each report shall identify any deviations from emission limitations, monitoring, recordkeeping, reporting, or any other requirements of the permit, this includes deviations or Part 64 exceedances.
 - d) Submit supplemental reports as required or as needed. Supplemental reports are required no later than ten days after any exceedance of any applicable rule, regulation or other restriction. All reports of deviations shall identify the cause or probable cause of the deviations and any corrective actions or preventative measures taken.
 - i) Notice of any deviation resulting from an emergency (or upset) condition as defined in Paragraph (6)(C)7.A of 10 CSR 10-6.065 (Emergency Provisions) shall be submitted to the permitting authority either verbally or in writing within two working days after the date on which the emission limitation is exceeded due to the emergency, if the permittee wishes to assert an affirmative defense. The affirmative defense of emergency shall be demonstrated through properly signed, contemporaneous operating logs, or other relevant evidence that indicate an emergency occurred and the permittee can identify the cause(s) of the emergency. The permitted installation must show that it was operated properly at the time and that during the period of the emergency the permittee took all reasonable steps to minimize levels of emissions that exceeded the emission standards or requirements in the permit. The notice must contain a description of the emergency, the steps taken to mitigate emissions, and the corrective actions taken.

- ii) Any deviation that poses an imminent and substantial danger to public health, safety or the environment shall be reported as soon as practicable.
- iii) Any other deviations identified in the permit as requiring more frequent reporting than the permittee's semi-annual report shall be reported on the schedule specified in this permit, and no later than ten days after any exceedance of any applicable rule, regulation, or other restriction.
- e) Every report submitted shall be certified by the responsible official, except that, if a report of a deviation must be submitted within ten days after the deviation, the report may be submitted without a certification if the report is resubmitted with an appropriate certification within ten days after that, together with any corrected or supplemental information required concerning the deviation.
- f) The permittee may request confidential treatment of information submitted in any report of deviation.

10 CSR 10-6.065(6)(C)1.D Risk Management Plan Under Section 112(r)

The permittee shall comply with the requirements of 40 CFR Part 68, Accidental Release Prevention Requirements. If the permittee has more than a threshold quantity of a regulated substance in process, as determined by 40 CFR Section 68.115, the permittee shall submit a Risk Management Plan in accordance with 40 CFR Part 68 no later than the latest of the following dates:

- 1) June 21, 1999;
- 2) Three years after the date on which a regulated substance is first listed under 40 CFR Section 68.130; or
- 3) The date on which a regulated substance is first present above a threshold quantity in a process.

10 CSR 10-6.065(6)(C)1.F Severability Clause

In the event of a successful challenge to any part of this permit, all uncontested permit conditions shall continue to be in force. All terms and conditions of this permit remain in effect pending any administrative or judicial challenge to any portion of the permit. If any provision of this permit is invalidated, the permittee shall comply with all other provisions of the permit.

10 CSR 10-6.065(6)(C)1.G General Requirements

- 1) The permittee must comply with all of the terms and conditions of this permit. Any noncompliance with a permit condition constitutes a violation and is grounds for enforcement action, permit termination, permit revocation and re-issuance, permit modification or denial of a permit renewal application.
- 2) The permittee may not use as a defense in an enforcement action that it would have been necessary for the permittee to halt or reduce the permitted activity in order to maintain compliance with the conditions of the permit
- 3) The permit may be modified, revoked, reopened, reissued or terminated for cause. Except as provided for minor permit modifications, the filing of an application or request for a permit modification, revocation and reissuance, or termination, or the filing of a notification of planned changes or anticipated noncompliance, does not stay any permit condition.
- 4) This permit does not convey any property rights of any sort, nor grant any exclusive privilege.
- 5) The permittee shall furnish to the Air Pollution Control Program, upon receipt of a written request and within a reasonable time, any information that the Air Pollution Control Program reasonably may require to determine whether cause exists for modifying, reopening, reissuing or revoking the

permit or to determine compliance with the permit. Upon request, the permittee also shall furnish to the Air Pollution Control Program copies of records required to be kept by the permittee. The permittee may make a claim of confidentiality for any information or records submitted pursuant to 10 CSR 10-6.065(6)(C)1.

10 CSR 10-6.065(6)(C)1.H Incentive Programs Not Requiring Permit Revisions

No permit revision will be required for any installation changes made under any approved economic incentive, marketable permit, emissions trading, or other similar programs or processes provided for in this permit.

10 CSR 10-6.065(6)(C)1.I Reasonably Anticipated Operating Scenarios

None.

10 CSR 10-6.065(6)(C)3 Compliance Requirements

- 1) Any document (including reports) required to be submitted under this permit shall contain a certification signed by the responsible official.
- 2) Upon presentation of credentials and other documents as may be required by law, the permittee shall allow authorized officials of the Missouri Department of Natural Resources, or their authorized agents, to perform the following (subject to the installation's right to seek confidential treatment of information submitted to, or obtained by, the Air Pollution Control Program):
 - a) Enter upon the premises where a permitted installation is located or an emissions-related activity is conducted, 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, at reasonable times and using reasonable safety practices, any facilities, equipment (including monitoring and air pollution control equipment), practices, or operations regulated or required under this permit; and
 - d) As authorized by the Missouri Air Conservation Law, Chapter 643, RSMo or the Act, sample or monitor, at reasonable times, substances or parameters for the purpose of assuring compliance with the terms of this permit, and all applicable requirements as outlined in this permit.
- 3) All progress reports required under an applicable schedule of compliance shall be submitted semi-annually (or more frequently if specified in the applicable requirement). These progress reports shall contain the following:
 - a) Dates for achieving the activities, milestones or compliance required in the schedule of compliance, and dates when these activities, milestones or compliance were achieved, and
 - b) An explanation of why any dates in the schedule of compliance were not or will not be met, and any preventative or corrective measures adopted.
- 4) The permittee shall submit an annual certification that it is in compliance with all of the federally enforceable terms and conditions contained in this permit, including emissions limitations, standards, or work practices. These certifications shall be submitted annually by April 1st, unless the applicable requirement specifies more frequent submission. These certifications shall be submitted to EPA Region VII, 901 North 5th Street, Kansas City, KS 66101, as well as the Air Pollution Control Program, Enforcement Section, P.O. Box 176, Jefferson City, MO 65102. All deviations and Part 64 exceedances and excursions must be included in the compliance certifications. The compliance certification shall include the following:
 - a) The identification of each term or condition of the permit that is the basis of the certification;

- b) The current compliance status, as shown by monitoring data and other information reasonably available to the installation;
- c) Whether compliance was continuous or intermittent;
- d) The method(s) used for determining the compliance status of the installation, both currently and over the reporting period; and
- e) Such other facts as the Air Pollution Control Program will require in order to determine the compliance status of this installation.

10 CSR 10-6.065(6)(C)6 Permit Shield

- 1) Compliance with the conditions of this permit shall be deemed compliance with all applicable requirements as of the date that this permit is issued, provided that:
 - a) The applicable requirements are included and specifically identified in this permit, or
 - b) The permitting authority, in acting on the permit revision or permit application, determines in writing that other requirements, as specifically identified in the permit, are not applicable to the installation, and this permit expressly includes that determination or a concise summary of it.
- 2) Be aware that there are exceptions to this permit protection. The permit shield does not affect the following:
 - a) The provisions of Section 303 of the Act or Section 643.090, RSMo concerning emergency orders,
 - b) Liability for any violation of an applicable requirement which occurred prior to, or was existing at, the time of permit issuance,
 - c) The applicable requirements of the acid rain program,
 - d) The authority of the Environmental Protection Agency and the Air Pollution Control Program of the Missouri Department of Natural Resources to obtain information, or
 - e) Any other permit or extra-permit provisions, terms or conditions expressly excluded from the permit shield provisions.

10 CSR 10-6.065(6)(C)7 Emergency Provisions

- 1) An emergency or upset as defined in 10 CSR 10-6.065(6)(C)7.A shall constitute an affirmative defense to an enforcement action brought for noncompliance with technology-based emissions limitations. To establish an emergency- or upset-based defense, the permittee must demonstrate, through properly signed, contemporaneous operating logs or other relevant evidence, the following:
 - a) That an emergency or upset occurred and that the permittee can identify the source of the emergency or upset,
 - b) That the installation was being operated properly,
 - c) That the permittee took all reasonable steps to minimize emissions that exceeded technology-based emissions limitations or requirements in this permit, and
 - d) That the permittee submitted notice of the emergency to the Air Pollution Control Program within two working days of the time when emission limitations were exceeded due to the emergency. This notice must contain a description of the emergency, any steps taken to mitigate emissions, and any corrective actions taken.
- 2) Be aware that an emergency or upset shall not include noncompliance caused by improperly designed equipment, lack of preventative maintenance, careless or improper operation, or operator error.

10 CSR 10-6.065(6)(C)8 Operational Flexibility

An installation that has been issued a Part 70 operating permit is not required to apply for or obtain a permit revision in order to make any of the changes to the permitted installation described below if the changes are not Title I modifications, the changes do not cause emissions to exceed emissions allowable under the permit, and the changes do not result in the emission of any air contaminant not previously emitted. The permittee shall notify the Air Pollution Control Program, Enforcement Section, P.O. Box 176, Jefferson City, MO 65102, as well as EPA Region VII, 901 North 5th Street, Kansas City, KS 66101, at least seven days in advance of these changes, except as allowed for emergency or upset conditions. Emissions allowable under the permit means a federally enforceable permit term or condition determined at issuance to be required by an applicable requirement that establishes an emissions limit (including a work practice standard) or a federally enforceable emissions cap that the source has assumed to avoid an applicable requirement to which the source would otherwise be subject.

- 1) Section 502(b)(10) changes. Changes that, under Section 502(b)(10) of the Act, contravene an express permit term may be made without a permit revision, except for changes that would violate applicable requirements of the Act or contravene federally enforceable monitoring (including test methods), recordkeeping, reporting or compliance requirements of the permit.
 - a) Before making a change under this provision, The permittee shall provide advance written notice to the Air Pollution Control Program, Enforcement Section, P.O. Box 176, Jefferson City, MO 65102, as well as EPA Region VII, 901 North 5th Street, Kansas City, KS 66101, describing the changes to be made, the date on which the change will occur, and any changes in emission and any permit terms and conditions that are affected. The permittee shall maintain a copy of the notice with the permit, and the Air Pollution Control Program shall place a copy with the permit in the public file. Written notice shall be provided to the EPA and the Air Pollution Control Program as above at least seven days before the change is to be made. If less than seven days notice is provided because of a need to respond more quickly to these unanticipated conditions, the permittee shall provide notice to the EPA and the Air Pollution Control Program as soon as possible after learning of the need to make the change.
 - b) The permit shield shall not apply to these changes.

10 CSR 10-6.065(6)(C)9 Off-Permit Changes

- 1) Except as noted below, the permittee may make any change in its permitted operations, activities or emissions that is not addressed in, constrained by or prohibited by this permit without obtaining a permit revision. Insignificant activities listed in the application, but not otherwise addressed in or prohibited by this permit, shall not be considered to be constrained by this permit for purposes of the off-permit provisions of this section. Off-permit changes shall be subject to the following requirements and restrictions:
 - a) The change must meet all applicable requirements of the Act and may not violate any existing permit term or condition; the permittee may not change a permitted installation without a permit revision if this change is subject to any requirements under Title IV of the Act or is a Title I modification;
 - b) The permittee must provide written notice of the change to the Air Pollution Control Program, Enforcement Section, P.O. Box 176, Jefferson City, MO 65102, as well as EPA Region VII, 901 North 5th Street, Kansas City, KS 66101, no later than the next annual emissions report. This notice shall not be required for changes that are insignificant activities under 10 CSR 10-6.065(6)(B)3. This written notice shall describe each change, including the date, any change in

emissions, pollutants emitted and any applicable requirement that would apply as a result of the change.

- c) The permittee shall keep a record describing all changes made at the installation that result in emissions of a regulated air pollutant subject to an applicable requirement and the emissions resulting from these changes; and
- d) The permit shield shall not apply to these changes.

10 CSR 10-6.020(2)(R)12 Responsible Official

The application utilized in the preparation of this permit was signed by Richard J. Heisse, St. Louis Site Manager. On May 17, 2012, the Air Pollution Control Program was informed that Mr. Stan Slusser, Regional Operations Manager is now the responsible official. If this person terminates employment, or is reassigned different duties such that a different person becomes the responsible person to represent and bind the installation in environmental permitting affairs, the owner or operator of this air contaminant source shall notify the Director of the Air Pollution Control Program of the change. Said notification shall be in writing and shall be submitted within 30 days of the change. The notification shall include the name and title of the new person assigned by the source owner or operator to represent and bind the installation in environmental permitting affairs. All representations, agreement to terms and conditions and covenants made by the former responsible person that were used in the establishment of limiting permit conditions on this permit will continue to be binding on the installation until such time that a revision to this permit is obtained that would change said representations, agreements and covenants.

10 CSR 10-6.065(6)(E)6 Reopening-Permit for Cause

This permit may be reopened for cause if:

- 1) The Missouri Department of Natural Resources (MDNR) receives notice from the Environmental Protection Agency (EPA) that a petition for disapproval of a permit pursuant to 40 CFR § 70.8(d) has been granted, provided that the reopening may be stayed pending judicial review of that determination,
- 2) The Missouri Department of Natural Resources or EPA determines that the permit contains a material mistake or that inaccurate statements were made which resulted in establishing the emissions limitation standards or other terms of the permit,
- 3) Additional applicable requirements under the Act become applicable to the installation; however, reopening on this ground is not required if—:
 - a) The permit has a remaining term of less than three years;
 - b) The effective date of the requirement is later than the date on which the permit is due to expire;
or
 - c) The additional applicable requirements are implemented in a general permit that is applicable to the installation and the installation receives authorization for coverage under that general permit,
- 4) The installation is an affected source under the acid rain program and additional requirements (including excess emissions requirements), become applicable to that source, provided that, upon approval by EPA, excess emissions offset plans shall be deemed to be incorporated into the permit;
or
- 5) The Missouri Department of Natural Resources or EPA determines that the permit must be reopened and revised to assure compliance with applicable requirements.

10 CSR 10-6.065(6)(E)1.C Statement of Basis

This permit is accompanied by a statement setting forth the legal and factual basis for the permit conditions (including references to applicable statutory or regulatory provisions). This Statement of Basis, while referenced by the permit, is not an actual part of the permit.

VI. Attachments

Attachments follow.

**Attachment B: Method 9 Opacity Emissions Observation
 10 CSR 10-6.220 Compliance Demonstration**

Method 9 Opacity Emissions Observations	
Company	Observer
Location	Observer Certification Date
Date	Emission Unit
Time	Control Device

Hour	Minute	Seconds				Steam Plume (check if applicable)		Comments
		0	15	30	45	Attached	Detached	
	0							
	1							
	2							
	3							
	4							
	5							
	6							
	7							
	8							
	9							
	10							
	11							
	12							
	13							
	14							
	15							
	16							
	17							
	18							

SUMMARY OF AVERAGE OPACITY				
Set Number	Time		Opacity	
	Start	End	Sum	Average

Readings ranged from _____ to _____ % opacity.

Was the emission unit in compliance at the time of evaluation? _____

YES NO

 Signature of Observer

Attachment G: Compliance Assurance Monitoring Plan (CAM)

P.Q. Corporation (APCP Id. No. 510-0809) CAM Monitoring Approach for Particulate Matter Emissions Controlled by Dust Collector Filter System From Emission Points EP-102, Mill Heater		
	Indicator #1	Indicator #2
Indicator	Visible Emissions	Pressure Drop
Measurement Approach	Visible emissions from each baghouse exhaust shall be monitored using EPA Reference Method 22-like procedures.	Pressure drop across each baghouse shall be measured with a differential pressure gauge.
Indicator Range	The indicator range is defined as no visible emissions. An excursion is defined as the presence of visible emissions.	The indicator range is defined as a pressure drop between 0.1 and 7 inches of water column (in H ₂ O). An excursion is defined as a pressure drop that is less than 0.1 in H ₂ O and/or greater than 7 inches H ₂ O.
	An excursion of either indicator constitutes an excursion. If visible emissions are present when the pressure drop is within its specified indicator range, the pressure drop indicator range shall be re-evaluated by the permittee. Excursions trigger an inspection, corrective action, and need to be reported in the next Semi-annual Monitoring Report. Excursions shall be corrected immediately upon detection; if an excursion results in excess emissions exceeding 1 hour, the permittee may elect to file a startup, shutdown, and malfunction assertion under 10 CSR 10-6.050 if appropriate to the situation.	
QIP Threshold	The QIP threshold for any individual emission unit is 9 excursions in a 6-month reporting period. If an emission unit reaches the QIP threshold, the permittee shall submit a QIP for that unit along with the Semi-annual Monitoring Report for that reporting period.	
Performance Criteria		
Data Representativeness	Measurements shall be made at the emission point (i.e., baghouse exhaust).	Pressure drop taps are located at the inlet and outlet of each baghouse. The differential pressure gauges have a minimum accuracy of 0.25 in H ₂ O.
Verification of Operational Status	NA	Pressure drop taps are checked for plugging quarterly or upon reasonable suspicion of gauge malfunction.
QA/QC Practices and Criteria	The visible emissions observer shall be familiar with EPA Reference Method 22 and follow Method 22-like procedures.	The differential pressure gauges shall be calibrated no less frequently than semi-annually in accordance with the manufacturer's specifications.
Monitoring Frequency	A 6-minute Method 22-like observation shall be performed daily.	Continuously.
Data Collection Procedure	The VE observation is manually recorded (i.e., documented) daily by the observer.	An instantaneous measurement shall be manually recorded daily.
Averaging Period	NA	None
Reporting	Summary information on the number, duration, and cause for any excursions and differential pressure gauge downtime shall be reported semi-annually as part of P.Q. Corporation's Part 70 Semi-annual Monitoring Report.	

STATEMENT OF BASIS

Permit Reference Documents

These documents were relied upon in the preparation of the operating permit. Because they are not incorporated by reference, they are not an official part of the operating permit.

- 1) Part 70 Operating Permit Application, received September 17, 2009;
- 2) 2011 Emissions Inventory Questionnaire, received March 17, 2012; and
- 3) U.S. EPA document AP-42, *Compilation of Air Pollutant Emission Factors*; Volume I, Stationary Point and Area Sources, Fifth Edition.
- 4) City of St Louis Air Pollution Control Program Construction Permits and Source Registration Permits:

Permit Number	Date Issued	Description
94-05-025	May 20, 1994	Permit to install process equipment to manufacture Silica Gel
96-11-094	January 7, 1997	Permit to Operate Silica Gel Manufacturing Equipment
99-01-006	May 3, 1999	Product Refeed Station (terminated August 27, 2003)
99-01-006	May 26, 1999	Temporary Boiler - Sodium Silicate Plant (terminated August 27, 2003)
99-11-32T	December 9, 1999	Supplemental Boiler Time Extension (terminated August 27, 2003)
99-08-058	May 4, 2000	Supplemental Boiler
OP-2004-003	February 5, 2004	Part 70 State Operating Permit
OP-2005-010	March 18, 2005	Part 70 State Operating Permit (RACT Plan Reissue of OP-2004-003)
10-10-019	April 28, 2011	Gel Plant Mill Modification and a Production Limit Increase for the Silica Gel Production Line (Supersedes Permit Number 96-11-094)

Applicable Requirements Included in the Operating Permit but Not in the Application or Previous Operating Permits

In the operating permit application, the installation indicated they were not subject to the following regulation(s). However, in the review of the application, the agency has determined that the installation is subject to the following regulation(s) for the reasons stated.

None

Other Air Regulations Determined Not to Apply to the Operating Permit

The Air Pollution Control Program (APCP) has determined the following requirements to not be applicable to this installation at this time for the reasons stated.

- 1) 10 CSR 10-5.220, *Control of Petroleum Liquid Storage, Loading and Transfer*.
According to 10 CSR 10-5.220 (1)(C)1.B., petroleum storage tanks that contain a petroleum liquid with a true vapor pressure less than 27.6 kilopascals (kPa) (4.0 psia) at ninety degrees Fahrenheit (90°F) are exempt from this rule. The installation only stores Fuel Oil No. 2 which has a true vapor pressure of 0.016 psia at 90°F (AP-42, Table 7.1-2, Properties of Selected Petroleum Liquids) below the vapor pressure that triggers the requirements of the rule.

2) 10 CSR 10-5.240, *Additional Air Quality Control Measures May be Required When Sources Are Clustered in a Small Area.*

The installation is not located in an area that would trigger the requirements of this rule as stated 10 CSR 10-5.240(1)(A) and (B).

3) 10 CSR 10-5.500, *Control of Emissions from Volatile Organic Liquid Storage.*

The provisions of this rule shall apply to all storage containers of volatile organic liquid (VOL) with a maximum true vapor pressure of one-half pound per square inch (0.5 psia) or greater in any stationary tank, reservoir or other container of forty thousand (40,000) gallon capacity or greater, except to vessels listed in 10 CSR 10-5.500(1)(A)1. through 7. The installation only stores fuel oil number 2 which has less a vapor pressure of less than 0.5 psia and is therefore exempt from the rule.

4) 10 CSR 10-5.540, *Control of Emissions from Batch Process Operations.*

This rule is applicable to all batch process operations that have the potential to emit equal to or greater than 100 tons per year of volatile organic compounds (VOC) at sources identified by any of the following four (4)-digit standard industrial classification (SIC) codes, as defined in the 1987 edition of the *Federal Standard Industrial Classification Manual*: SIC 2821, 2833, 2834, 2861, 2865, 2869, and 2879.

The SIC code 2819, associated with the activities at the installation is not considered in the list that triggers the requirements of the rule. In addition, potential emissions of VOCs do not exceed 100 tons per year according to the EIQ for 2011 emissions. Therefore, the requirements of the rule are not triggered.

Construction Permit Revisions

The following revisions were made to construction permits for this installation:

1) City of St. Louis Division of Air Pollution Control Construction Permit No. 99-01-006:

This permit was obtained for a proposed air conveying system to transport silica gel from the refeed station to a packaging silo. This system was never installed and the refeed station is not subject to the special conditions of the construction permit.

2) 10 CSR 10-6.060, *Construction Permits Required*

When a Construction Permit is incorporated into the Operating Permit, all aspects of the Construction Permit relating to emissions are to be maintained for an installation to be in compliance. According to 10 CSR 10-6.060, *Construction Permits Required* the Construction Permit consists of both the issued permit and Construction Permit application.

10 CSR 10-6.060 (6)(E)3. – “Any owner or operator who constructs, modifies or operates an installation not in accordance with the application submitted and the permit issued, including any terms and conditions made a part of the permit, or any owner or operator of an installation who commences construction or modification after May 13, 1982, without meeting the requirements of this rule, is in violation of this rule;”

Any installation that does not comply with the issued permit and Construction Permit application as it relates to emissions would be considered to be in violation of 10 CSR 10-6.060.

The Construction Permit application consists of numerous parameters that are not included in either the Construction Permit or the Operating Permit. Some examples of the criteria necessary for the

application are site information; descriptions; plans; control efficiencies; flow parameters; design specifications; and drawings showing the design of the installation, the nature and amount of emission of each pollutant, and the manner in which emission units will be operated and controlled. These values submitted in the Construction Permit application define the criteria the regulatory agencies use to evaluate potential emissions and determine the ambient air quality of the surrounding area. It is essential the installation operate and construct the emission units according to the criteria related to emissions in the Construction Permit application, since the criteria are the basis behind the limitations established in the Construction Permit. If any of the parameters relating to emissions should change, the installation would be required to request and obtain a modification to their Construction Permit.

While an installation must adhere to their Construction Permit application, it is not necessary for the installation to certify and monitor each application parameter to show compliance. The installation is only required to monitor those parameters defined in specific State or Federal requirements or identified as Special Conditions in the Construction Permit. When construction permits are placed in Plant-wide and Emission Unit permit conditions in the Operating Permit, the installation is required to certify compliance with the parameters (monitoring, performance testing, recordkeeping and reporting) identified in the Plant-wide and Emission Unit permit conditions of the Operating Permit. However, the various parameters detailed in the Construction Permit application are still applicable to the installation, even though the criteria are not specifically listed in the Operating Permit.

New Source Performance Standards (NSPS) Applicability

10 CSR 10-6.070, *New Source Performance Regulations*

- 1) 40 CFR Part 60, Subpart D, *Standards of Performance for Fossil-Fuel-Fired Steam Generators for Which Construction is Commenced After August 17, 1971.*

The provisions of this subpart apply to each fossil-fuel-fired steam generating unit of more than 73 megawatts heat input rate (250 million Btu per hour) constructed or modified after August 17, 1971 and not covered under Subpart Da.

None of the boilers are rated at greater than 73 megawatts heat input rate (250 million Btu per hour), therefore this subpart does not apply to this installation.

- 2) 40 CFR Part 60, Subpart Da, *Standards of Performance for Electric Utility Steam Generating Units for Which Construction is commenced After September 18, 1978.*

The provisions of this subpart apply to each electric utility fossil-fuel-(either alone or in combination with any other fuel) fired steam generating unit of more than 73 megawatts heat input rate (250 million Btu per hour) constructed or modified after September 18, 1978.

None of the boilers are electric utility steam generating units as defined in this subpart nor are rated at greater than 73 megawatts heat input rate (250 million Btu per hour), therefore this subpart does not apply to this installation.

- 3) 40 CFR Part 60, Subpart Db, *Standards of Performance for Industrial-Commercial-Institutional Steam Generating Units.*

The provisions of this subpart apply to each steam generating unit that commences construction, modification, or reconstruction after June 19, 1984, and that has a heat input capacity from fuels combusted in the steam generating unit of greater than 29 MW (100 million Btu per hour).

None of the boilers are rated at greater than 29 megawatts heat input rate (100 million Btu per hour), therefore this subpart does not apply to this installation.

4) 40 CFR Part 60, Subpart Dc, *Standards of Performance for Small Industrial-Commercial-Institutional Steam Generating Units*

Subpart Dc applies to each steam generating unit for which construction, modification, or reconstruction is commenced after June 9, 1989, and that has a maximum design heat input capacity of 29 megawatts (MW) (100 million Btu/hr) or less, but greater than or equal to 2.9 MW (10 million Btu/hr).

40 CFR Part 60, Subpart Dc does apply to the 15.3 MMBtu/hr boiler permitted under City of St. Louis Air Pollution Control Permit No. 99-08-058 because the unit was installed after June 9, 1989 and has a heat input between 10 MMBtu/hr and 100 MMBtu/hr. All other steam generating units were either installed prior to the applicability date of the subpart (June 9, 1989) or the maximum rated capacity of the unit is below the applicability threshold of the subpart (< 10 MMBtu/hr).

5) 40 CFR Part 60, Subpart K – *Standards of Performance for Storage Vessels for Petroleum Liquids for Which Construction, Reconstruction, or Modification commenced After June 11, 1973*
40 CFR Part 60, Subpart Ka, *Standards of Performance for Storage Vessels for Petroleum Liquids for Which Construction, Reconstruction, or Modification commenced After May 18, 1978, and Prior to July 23, 1984*

40 CFR Part 60, Subpart Kb, *Standards of Performance for Volatile Organic Liquid Storage Vessels (Including Petroleum Liquid Storage Vessels) for Which Construction, Reconstruction, or Modification Commenced after July 23, 1984.*

Subpart K, Ka nor Kb applies to the 46,900-gallon No. 2 Fuel Oil storage tank as the tank was installed prior to the applicability date of all three subparts and in the case of Subparts K and Ka, No. 2 Fuel Oil is specifically excluded as a petroleum liquid for the purpose of those subparts. All other liquid storage tanks on site are not used to store a petroleum liquid or other volatile organic liquid and/or are less than the applicability thresholds of the three subparts.

Maximum Achievable Control Technology (MACT) Applicability

10 CSR 10-6.075, *Maximum Achievable Control Technology Regulations*

40 CFR Part 63, Subpart JJJJJ, *National Emission Standards for Hazardous Air Pollutants for Industrial, Commercial, and Institutional Boilers - Area Sources*

This regulation applies to boilers at area source facilities that burn coal, oil, biomass, or non-waste materials. Boilers burning natural gas as defined in this regulation would not be affected by the rule.

This regulation does not apply to the boilers because the boilers are natural gas fired boilers with Fuel Oil No. 2 as back-up. The rule exempts natural gas fired boilers with fuel oil as back-up fuel. According to this rule, gas-fired boiler includes any boiler that burns gaseous fuels not combined with any solid fuels, burns liquid fuel only during periods of gas curtailment, gas supply emergencies, or periodic testing on liquid fuel. Periodic testing of liquid fuel shall not exceed a combined total of 48 hours during any calendar year.

National Emission Standards for Hazardous Air Pollutants (NESHAP) Applicability

- 1) 40 CFR Part 61 Subpart M - *National Emission Standard for Asbestos*, §61.145(a), Standard for demolition and renovation, applies to the installation.

This regulation has been included in the operating permit because it applies to any demolition or renovation (as outlined in 40 CFR 61.145) of buildings containing asbestos at the installation.

- 2) 40 CFR Part 61, Subpart N, *National Emission Standard for Inorganic Arsenic Emissions from Glass Manufacturing Plants*, does not apply to this installation since the installation is not a glass manufacturing plant and the glass melting furnace does not use commercial arsenic as a raw material.

Compliance Assurance Monitoring (CAM) Applicability

40 CFR Part 64, *Compliance Assurance Monitoring (CAM)*

The CAM rule applies to each pollutant specific emission unit that:

- 1) Is subject to an emission limitation or standard, and
- 2) Uses a control device to achieve compliance, and
- 3) Has pre-control emissions that exceed or are equivalent to the major source threshold.

Two specific emission units are potentially subject to CAM at the St. Louis facility: The Mill Heater (Unit ID EP102) and Silo Cyclone (Unit ID EP104). The Mill Heater and Silo Cyclone are equipped with baghouses and each has the potential to emit prior to control of greater than 100 tons per year of particulate matter (PM). PM is regulated under 10 CSR 10-6.400.

The exhaust from the Silo Cyclone baghouse is not exhausted to the ambient air but instead is recycled to convey the silica gel to the Cylo Cyclone. In order for CAM applicability criteria #2 to be satisfied, an emission unit subject to an emission standard must require a control device to meet the emission standard, where control device is defined as “equipment, other than inherent process equipment, that is used to destroy or remove air pollutant prior to discharge to the atmosphere.” It is possible for a piece of process equipment to be perceived as a control device, simply because it accomplishes emission reduction. However, equipment that is inherent to the process operation that achieves emission reduction as a co-benefit is not considered control equipment. The baghouse part of Silo Cyclone systems is inherent to the operation of the material transfer processes and provide for product recovery. Therefore, the baghouse does not meet CAM criteria #2 (i.e. the baghouse does not meet the 40 CFR 64 definition of control device), and the baghouse is not subject to CAM requirements.

The Mill Heater (Unit ID EP102) utilizes a control device to limit PM emissions from the process and has a potential to emit 983.13 tons of PM pre-control, which exceeds the major source threshold (applicability criteria #3). The Mill Heater has a process weight limit of 3.71 pounds of PM per hour and uses fabric filters to achieve this limit. Since the Mill Heater triggers all three CAM criteria, PQ Corporation has submitted CAM Plan as required by the CAM rule. The CAM plan is incorporated into this permit.

Greenhouse Gas Emissions

On May 13, 2010, EPA issued the GHG Tailoring Rule which set the major source threshold for CO₂e to be 100,000 tons per year within 40 CFR Part 70. As of July 1, 2011, all Title V operating

permits are required to include GHG emissions. Potential emissions of greenhouse gases (CO₂e) for this installation are calculated to be 39,959.84 tons, classifying the installation as a minor source of GHGs. There are no currently issued GHG regulations applicable to this installation. Missouri regulations do not require the installation to report CO₂e emissions in their Missouri Emissions Inventory Questionnaire; therefore, the installation's CO₂e emissions were not included within this permit.

Other Regulatory Determinations

1) 10 CSR 10-6.6.405, *Maximum Allowable Emission of Particulate Matter from Fuel Burning Equipment Used for Indirect Heating*

According to 10 CSR 10-6.405(1)(C), an installation is exempt from this rule if all of the installation's applicable units are fueled only by landfill gas, propane, natural gas, Fuel Oils Nos. 2 through 6 (with less than one and two-tenths percent (1.2 %) sulfur), or other gases (with hydrogen sulfide levels less than or equal to four (4) parts per million volume as measured using ASTM D4084, or equivalent and mercury concentrations less than forty (40) micrograms per cubic meter as measured using ASTM D5954, or ASTM D6350, or equivalent or any combination of these fuels.

All the indirect heating sources operated at this installation exclusively combust natural gas/ propane and Fuel Oil No. 2, therefore the installation is not subject to this rule.

2) 10 CSR 10-6.220, *Restriction of Emission of Visible Air Contaminants*

This rule applies to all particulate emitting sources listed in the emission units with limitations and emission units listed in emission units without limitations, i.e., equipment that does not have unit specific limitations at the time of permit issuance.

At the time of issuance of this permit, the installation had already completed its weekly and bi-weekly observations, as required by the initial operating permit OP2004-003 conditions. The installation is currently conducting monthly observations as required by the previously mentioned permit condition.

As stated in the Region 7 Policy on Periodic Monitoring for Opacity, a Method 22 like observation will consist of a quick survey of the entire plant. In most cases, this "qualitative" assessment should take no more than 10-15 minutes, even for complex sources. Detecting visible emissions is an indicator of operating problems and gives the permittee a chance to take corrective actions before exceeding the opacity limit. Conducting Method 9 observations after the observation of visible emissions determines whether the emissions exceed the opacity limit, or confirm that corrective action has restored proper operation. The installation had performed the initial weekly/biweekly observations and has been performing monthly monitoring; therefore it will be required to continue visible emissions observation on a monthly basis unless a violation occurs. If a violation occurs, the monitoring frequency will revert to a weekly schedule. This tiered monitoring frequency of visible/no visible emissions observations using Method 22 like procedures is considered sufficient.

3) 10 CSR 10-6.260, *Restriction of Emission of Sulfur Compounds*

a) Since SO_x emissions from Boiler #1 (EP6) and the Mill (EP102) are from fuel combustion only, requirements governing fuel usage were the only requirements included as permit conditions for this rule for those emission units.

- b) SO_x emissions from the sodium silicate melting & regenerating furnace (EP3) are from both fuel combustion and processing in the furnace. Based on 2010 EIQ (test result), the SO_x emission factor for the furnace is 0.365 lb/10⁶ cubic feet (cf) of natural gas combusted. The maximum hourly design rate of the furnace is 32.7 MMBtu/hr. According to the reporting year 2010 EIQ: the flow rate from the furnace stack is 9505 cubic feet per minute (cfm) and stack temperature is 750 °F. The regulation limits the amount of sulfur dioxide emissions to 500 parts per million by volume (ppmv) from new sources. If the emissions from these emission units can not violate the limits of this rule then evidence of this is demonstrated in the following calculations.

$$\text{SO}_2 \text{ emission} = (0.365 \text{ lb}/10^6 \text{ scf}) \times (32.7 \text{ MMBtu}/\text{hr}) \div 1050 \text{ MMBtu}/\text{MMcf} = 0.01 \text{ lbs}/\text{hr}$$

$$\text{PPMv SO}_2 = [\text{lbs SO}_2/\text{hr} \times \text{Specific volume SO}_2(\text{ft}^3/\text{lb}) \times 10^6] \div [\text{flow rate}(\text{acfm}) \times 60 \text{ min}/\text{hr}]$$

$$\text{SO}_{2(\text{ppmv})} = \frac{\left(0.01 \frac{\text{lbs}}{\text{hr}}\right) \times \left(1545 \frac{\text{ft}\cdot\text{lb}}{\text{mole}\cdot\text{R}}\right) \times \left(\left(460 + 750^\circ\text{F}\right)^p \text{R}\right) \times 10^6}{\left(64 \frac{\text{lbs}}{\text{mol}}\right) \times \left(14.7 \frac{\text{lbs}}{\text{in}^2}\right) \times \left(144 \frac{\text{in}^2}{\text{ft}^2}\right) \times \left(9505 \frac{\text{ft}^3}{\text{min}}\right) \times \left(60 \frac{\text{min}}{\text{hr}}\right)} = 0.24 \text{ ppmv}$$

The potential SO_x ppmv from the melting furnace is 0.24. This is lower than the allowable of 500 ppmv. Since there is no data available to determine the amount of SO_x that is actually sulfuric acid or sulfur trioxide, it has been determined that compliance with the ppmv limit assures compliance with the sulfuric acid/sulfur trioxide limit.

- 4) 10 CSR 10-6.400, Restriction of Emission of Particulate Matter From Industrial Processes
 10 CSR 10-6.400 limits the amount of particulate matter that is allowed from an emission unit, and is dependent on the process weight rate material processed. The emission units to which this rule applies are listed below. The following calculations provide the allowable particulate emission rate based on 10 CSR 10-6.400 and the potential (maximum) emission rate including particulate emission control equipment. Process information and data used in these calculations are from the P70 Operating Permit Renewal Application, 2011 EIQ, and AP-42 and FIRE factors. Also, one of the following equations from 10 CSR 10-6.400 is used to calculate the PM allowable limit:

$$E = 4.10P^{0.67} \text{ for process weight rates up to 30 tons (60,000 lbs) per hour, and}$$

$$E = 55.0P^{0.11} - 40 \text{ for process weight rates greater than 30 tons (60,000 lbs) per hour}$$

Where: E = rate of emission in lb/hr; and

P = process weight rate in tons/hr (maximum hourly design rate)

Emission Unit #	PM Control Device & Efficiency	Maximum Design Rate	PM Emission Factor	PM Uncontrolled Emissions	Fugitive Emissions	PM Controlled Emissions	PM Allowable Emission Rate
EP1	Fabric Filter with 99% control efficiency and 100% capture efficiency	33.20 tons/hr	0.20 lb/ton	6.64 lb/hr	—	0.07 lb/hr	40.85 lb/hr
EP2	Fabric Filter with 99% control efficiency and 100 % capture efficiency	8.30 tons/hr	0.029 lb/ton	20.84 lb/hr	—	0.00 lb/hr	Not Applicable
EP3	None	8.30 tons/hr	2 lb/ton	16.60 lb/hr	—	16.60 lb/hr	16.93 lb/hr
EP4	Venturi Scrubber with 90% control efficiency and 100 % capture efficiency	8.30 tons/hr	0.5 lb/ton	4.15 lb/hr	—	0.42 lb/hr	16.93 lb/hr
EP5	Spray Tower with 47.1% control efficiency and 100 % capture efficiency	33.20 tons/hr	0.25 lb/ton	8.30 lb/hr	—	4.39 lb/hr	40.85 lb/hr
EP7	None Fugitive Source	25.00 tons/hr	0.61 lb/ton		15.25 lb/hr	—	Not Applicable
EP102 ³	Fabric Filter with 99.14% control efficiency and 100 % capture efficiency	0.86 tons/hr	261 lb/ton	224.46 lb/hr	—	1.93 lb/hr	3.71 lb/hr
EP103 ⁴	Fabric Filter with 99.14% control efficiency and 100 % capture efficiency	0.86 tons/hr	6 lb/ton	5.16 lb/hr	—	0.04 lb/hr	3.71 lb/hr
EP104	Fabric Filter with 99.14% control efficiency and 100 % capture efficiency	0.86 tons/hr	44.6 lb/ton	38.36 lb/hr	—	0.25 lb/hr	3.71 lb/hr

³ EP102 – Subject to CAM

⁴ The fabric filter is inherent part of the process

- a) At maximum design rates, the uncontrolled potential PM emission rates for EP1, EP2, EP3, EP4, EP5 and EP104 are less than their corresponding allowable PM emission limits. No monitoring, recordkeeping or reporting is required for these units.
- b) The PM emissions from EP103 are controlled by baghouses. The permittee is required to monitor the corresponding emission control equipment and adhere to recordkeeping and reporting requirements because the uncontrolled potential emissions are much larger than the corresponding limit. In case of the control equipment failing the installation would very likely emit far in excess of the limit. Periodic monitoring of the equipment will assure its proper working conditions.
- c) As stated in the CAM applicability section of the Statement of Basis, the baghouse associated with this emission unit is inherent to the operation of the material transfer processes and provide for product recovery. PM Emissions are less than the allowable and therefore no monitoring of the baghouse is required.
- d) Batch Handling System – EP2
 This material handling system is a closed system that utilizes compressed air to transport the batch from the tanks to a hopper above the furnace. Although the handling system does utilize six bag vents, all of these devices vent inside the silicate building.

Updated Potential to Emit for the Installation

An updated Potential to Emit (PTE) for the installation is shown in the table below:

Pollutant	Potential to Emit (tons/yr) ¹
CO	19.50
CO ₂ e	39,959.84
NH ₃	73.32
HAPs	0.61
NO _x	179.93
PM ₁₀	351.24
PM _{2.5}	329.91
SO _x	0.16
VOC	4.67

¹Each emission unit was evaluated at 8,760 hours of uncontrolled annual operation unless otherwise noted.

- Emissions of PM₁₀ from EP102 and EP103 combined are limited to less 15 tons/yr. [Construction Permit No. 10-10-019]
- Emissions of PM_{2.5} from EP102 and EP103 combined are limited to less 10 tons/yr. [Construction Permit No. 10-10-019].
- PTE from EP12 is based 131.4 million cubic feet of natural gas usage limit set by Construction Permit No. 99-08-058.

Other Regulations Not Cited in the Operating Permit or the Above Statement of Basis

Any regulation which is not specifically listed in either the Operating Permit or in the above Statement of Basis does not appear, based on this review, to be an applicable requirement for this installation for one or more of the following reasons:

- 1) The specific pollutant regulated by that rule is not emitted by the installation;
- 2) The installation is not in the source category regulated by that rule;
- 3) The installation is not in the county or specific area that is regulated under the authority of that rule;
- 4) The installation does not contain the type of emission unit which is regulated by that rule;
- 5) The rule is only for administrative purposes.

Should a later determination conclude that the installation is subject to one or more of the regulations cited in this Statement of Basis or other regulations which were not cited, the installation shall determine and demonstrate, to the Air Pollution Control Program's satisfaction, the installation's compliance with that regulation(s). If the installation is not in compliance with a regulation which was not previously cited, the installation shall submit to the Air Pollution Control Program a schedule for achieving compliance for that regulation(s).

Prepared by:

Berhanu A. Getahun
Environmental Engineer

Mr. Richard J. Heisse
PQ Corporation
4238 Geraldine Avenue
St. Louis, MO 63115

Re: PQ Corporation, 510-0809
Permit Number: **OP2012-044**

Dear Mr. Heisse:

Enclosed with this letter is your Part 70 operating permit. Please review this document carefully. Operation of your installation in accordance with the rules and regulations cited in this document is necessary for continued compliance. It is very important that you read and understand the requirements contained in your permit.

You may appeal this permit to the Administrative Hearing Commission (AHC), P.O. Box 1557, Jefferson City, MO 65102, as provided in RSMo 643.078.16 and 621.250.3. If you choose to appeal, you must file a petition with the AHC within thirty days after the date this decision was mailed or the date it was delivered, whichever date was earlier. If any such petition is sent by registered mail or certified mail, it will be deemed filed on the date it is mailed. If it is sent by any method other than registered mail or certified mail, it will be deemed filed on the date it is received by the AHC.

If you have any questions or need additional information regarding this permit, please do not hesitate to contact Berhanu Getahun at the St. Louis Regional Office, 7545 S. Lindbergh, Suite 210, St. Louis, MO 63125, or by telephone at (314) 416-2960. You may also contact me with the department's Air Pollution Control Program, P.O. Box 176, Jefferson City, MO 65102, or by telephone at (573) 751-4817. Thank you for your time and attention to this matter.

Sincerely,

AIR POLLUTION CONTROL PROGRAM

Michael J. Stansfield, P.E.
Operating Permit Unit Chief

MJS:bgk

Enclosures

c: St. Louis Regional Office
PAMS File: 2009-09-030