



## 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 here in.

**Operating Permit Number:** OP2006-040  
**Expiration Date:** JUL 12 2011  
**Installation ID:** 031-0064  
**Project Number:** 2004-05-012

### Installation Name and Address

BioKyowa Incorporated – Main Production Facility  
5469 Nash Road  
Cape Girardeau, MO 63701  
Cape Girardeau County

### Parent Company's Name and Address

Kyowa Hakko Kgyo Limited  
P.O. Box 1550  
Cape Girardeau, MO 63702-1550

### Installation Description:

BioKyowa, Incorporated – Main Production Facility (BioKyowa) located in Cape Girardeau, Missouri manufactures feed additives for domestic animals. The manufacturing process consists of Plant 1 for the production of amino acids (theonine, tryptophan, valine and isoleucine); Plant 2 for the production of arginine glutamine and other amino acids; natural gas/fuel oil fired Utility Plant to produce process steam for operations; Evaporation Plant; and Wastewater Treatment Plant. The method of production involves fermentation to produce the feed additive and subsequent processing and handling of the product.

JUL 13 2006

Effective Date

*Steven Jula* for JLK

Director or Designee  
Department of Natural Resources

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## I. Installation Description and Equipment Listing

### INSTALLATION DESCRIPTION

BioKyowa, Incorporated – Main Production Facility (BioKyowa) located in Cape Girardeau, Missouri manufactures feed additives for domestic animals. The manufacturing process consists of Plant 1 for the production of amino acids (theanine, tryptophan, valine and isoleucine); Plant 2 for the production of arginine glutamine and other amino acids; natural gas/fuel oil fired Utility Plant to produce process steam for operations; Evaporation Plant; and Wastewater Treatment Plant. The method of production involves fermentation to produce the feed additive and subsequent processing and handling of the product. The reported actual emissions for the past five years for the installation are listed below:

Reported Air Pollutant Emissions, tons per year							
Year	Particulate Matter ≤ Ten Microns (PM-10)	Sulfur Oxides (SO <sub>x</sub> )	Nitrogen Oxides (NO <sub>x</sub> )	Volatile Organic Compounds (VOC)	Carbon Monoxide (CO)	Lead (Pb)	Hazardous Air Pollutants (HAPs)
2004	2.06	0.58	16.48	8.38	20.00	0.00	0.35
2003	5.41	0.17	18.90	8.58	23.92	0.00	2.07
2002	6.19	0.18	22.65	9.90	25.81	0.00	7.11
2001	13.69	0.69	35.94	20.58	38.94	0.00	2.57
2000	11.63	0.50	30.20	13.05	25.67	0.00	1.13

### EMISSION UNITS WITH LIMITATIONS

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

Emission Unit #	2004 EIQ Reference #	Description of Emission Unit
EU0010	EP-01	Utility Plant Process Boiler – A
EU0020	EP-02	Utility Plant Process Boiler - B
EU0030	EP-03	T106 – Plant1/Utility Plant Hydrochloric Acid Storage Tank
EU0040	EP-25	Plant 1 Filter Aid Vent
EU0060	EP-27	Plant 1 Hopper and Bagging
EU0070	EP-29	Plant 1 Dry Crystal Conveyor
EU0080	EP-23	T2122 – 40,000 Gallon Plant 2 Hydrogen Chloride (HCl) Storage Tank
EU0090	EP-37	T951 – 475 Gallon Plant 2 HCl Day Tank
EU0100	EP-36	Plant 2 Decolorizing Process
EU0110	EP-24	Plant 2 Product Loading
EU0120	EP-38	Plant 2 Dry Crystal Conveyor System
EU0130	EP-17	Utility Plant Process Boiler – C
EU0140	EP-18	Plant 2 Methanol Process
EU0150	EP-19a	T2441 – 16,000 Plant 2 Methanol Storage Tank
EU0160	EP-19b	T2442 – 16,000 Plant 2 Methanol Storage Tank
EU0170	EP-28	Methanol Wastewater Treatment

## **EMISSION UNITS WITHOUT LIMITATIONS**

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

### Description of Emission Unit

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12 Portable Propane Gas Heaters (3) at 0.10 MMBtu/hr, (5) at 0.075 MMBtu/hr and (4) at 0.05 MMBtu/hr)with 100 Pound Propane Bottles  
1.05 MMBtu/hr Natural Gas Fired Package Boiler (EP-41)  
Diesel Fired 300 HP Emergency Fire Pump  
Wastewater Treatment Plant  
Haul Road  
EU0050- Plant 1 Dryer (EP-26)  
Plant 1 Decolorizing System (EP-39)  
Plant 1 Sodium Metabisulfate Addition (EP-40)  
T101 - 528,000 Gallon Wastewater Utility Tank  
T102 - 5,300 Gallon Raw Material Storage Tank  
T105 - 21,000 Gallon Sulfuric Acid Storage Tank  
T106 - 26,000 Gallon Hydrochloric Acid Storage Tank  
T107 - 4,000 Gallon Nitric Acid Storage Tank  
T108A - 26,000 Gallon Anhydrous Ammonia Storage Tank  
T108B - 26,000 Gallon Anhydrous Ammonia Storage Tank  
T109 - 4,000 Gallon Caustic Storage Tank  
T111 – 2,600 Gallon Defoamer Oil Storage Tank  
T201A – 13,000 Gallon Molasses Dilution Tank  
T201B – 13,000 Gallon Molasses Dilution Tank  
T201D – 800 Gallon Glucose Tank  
T202C – 5,300 Gallon Makeup Tank  
T202D – 5,300 Gallon Makeup Tank  
T204D – 38,000 Feeding Tank  
T204E – 38,000 Feeding Tank  
T204F – 38,000 Feeding Tank  
T207 – 450 Gallon Defoamer Storage Tank  
T208B – 3,950 Gallon Nitric Acid Dilution Tank  
T209B – 3,950 Gallon Caustic Soda Dilution Tank  
T210C – 800 Gallon First Seed Tank  
T210D - 800 Gallon First Seed Tank  
T212B – 30 Gallon Caustic Measuring Tank  
T220C – 5,300 Gallon Second Seed Tank  
T220D - 5,300 Gallon Second Seed Tank  
T230D – 81,00 Gallon Plant 1 Main Fermentor (EP-33)  
T230E – 81,00 Gallon Plant 1 Main Fermentor (EP-34)  
T230F - 81,00 Gallon Plant 1 Main Fermentor (EP-335)  
T231D – 2,700 Gallon Cushion Tank  
T231E – 2,700 Gallon Cushion Tank  
T231F – 2,700 Gallon Cushion Tank  
T233C – 500 Gallon Pressure Holding Tank  
T233D – 500 Gallon Pressure Holding Tank  
T234 – 53 Gallon Ammonia Scrubbing Tank  
T240C – 1,200 Gallon Medium Cushion Tank  
T240D – 1,200 Gallon Medium Cushion Tank

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Description of Emission Unit

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T260A – 26,000 Gallon Hot Water Tank  
T260B – 26,000 Gallon Hot Water Tank  
T279B – 2,100 Gallon Drain Tank  
T280 - 53 gallon Defoamer Tank  
T281 – 2,650 Gallon Hot Water Tank  
T301C – 72,000 Gallon DI Water Storage Tank  
T301D – 72,000 Gallon Fermentation Broth Tank  
T301E – 80,000 Gallon Broth Tank  
T301F – 80,000 Gallon Broth Tank  
T302 – 2,600 Gallon Sulfuric Acid Head Tank  
T302A – 2,600 Gallon Sulfuric Acid Head Tank  
T302B – 1,320 Gallon Sulfuric Acid Head Tank  
T310A – 500 Gallon Resin Charging Tank  
T310B – 500 Gallon Redissolving Tank  
T351A – 31,700 Gallon Decolorizing Tank  
T351B – 31,700 Gallon Decolorizing Tank  
T353 – 2,650 Gallon Precoat Tank  
T354 – 450 ft<sup>3</sup> Filter Aid Tank  
T356A – 700 ft<sup>3</sup> Filter Aid Tank  
T356B – 700 ft<sup>3</sup> Filter Aid Tank  
T361 – 16,000 Gallon Filtrate Tank  
T411B – 16,000 Gallon Neutralization Tank  
T413A – 5,700 Gallon Vacuum Pan Tank  
T413B – 5,700 Gallon Vacuum Pan Tank  
T413C – 5,700 Gallon Vacuum Pan  
T413D – 5,700 Gallon Vacuum Pan  
T413E – 5,700 Gallon Vacuum Pan  
T414E – 5,000 Gallon Crystalizer  
T415C – 6,000 Gallon ML Tank  
T415D – 6,000 Gallon Wash-Liquor Tank  
T416B – 2,650 Gallon Centrifuge Feed Tank  
T416C – 2,650 Gallon Centrifuge Feed Tank  
T420 – 1,320 Gallon Caustic Soda Day Tank  
T506B – 1165 ft<sup>3</sup> Product Hopper  
T506C – 1165 ft<sup>3</sup> Product Hopper  
T610 – 2,600 Gallon pH adjustment w/Anhydrous Ammonia Tank  
T611 – 1,500 Gallon Evaporator Condensate Tank  
T612 – 500 Gallon C.I.P. Work Tank  
T613 – 500 Gallon Acid Wash (Dilute Nitric) Tank  
T615 – 500 Gallon Caustic Wash (Caustic Soda) Tank  
T617 – 160,000 Gallon Wastewater Utility Tank  
T650 – 1,000 Gallon Pre-Evaporation Feed Balance Tank  
T658 – 1,500 Gallon Forced Circulation Evaporation Feed Balance Tank  
T663 – 1,000 Gallon Condensate Receiver  
T664 – 3,000 Gallon Service Water Tank  
T665 – 3,000 Gallon Acid Reclaim Tank  
T666 – 3,000 Gallon Caustic Reclaim Tank  
T667 – 2,500 Gallon CIP Recovered Water Tank  
T810 – 7,800 Gallon Caustic Storage Tank  
T828A – 3,000 Gallon Polymer Storage Tank

### Description of Emission Unit

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T828B – 1,500 Gallon Polymer Storage Tank  
T829 – 90 Gallon Polymer Measuring Tank  
T830A – 1,400 Gallon Polymer Mixing Tank  
T830B – 1,400 Gallon Polymer Mixing Tank  
T838 – 36,800 Gallon Liquid Sludge Blending Tank  
T839A – 2,500 Gallon Ferric Sulfate Storage Tank  
T839B – 2,500 Gallon Ferric Sulfate Storage Tank  
T840A – 75,000 Gallon Sludge Storage Tank  
T840B – 125,000 Gallon Sludge Storage Tank  
T878 – 500 Gallon Caustic Soda Storage Tank  
T879 – 4,400 Gallon Bleach Storage Tank  
T886 – 4,000 Gallon Well Water Storage North Site  
T897A – 7,200 Gallon Caustic Soda Storage Tank  
T897B – 7,200 Gallon Caustic Soda Storage Tank  
T903 – 61,000 Gallon #2 Fuel Oil Storage Tank  
T904 – 33 Ft<sup>3</sup> Plant Air Receiver (Dried Air) Tank  
T905A – 33 Ft<sup>3</sup> Plant Air Receiver (Wet Air) Tank  
T905B – 33 Ft<sup>3</sup> Plant Air Receiver (Wet Air) Tank  
T906 – 300 Ft<sup>3</sup> Instrument Air Receiver Tank  
T910A – 250 Gallon Caustic Day Tank (Powerhouse)  
T910B – 250 Caustic Day Tank (Powerhouse)  
T911A – 18,000 Gallon Softened Water Storage Tank  
T911B – 18,000 Gallon Softened Water Storage Tank  
T913A – 500 Gallon Deionized Water Surge Tank  
T913B – 500 Gallon Deionized Water Surge Tank  
T914 – 500 Gallon Nitric Acid Dilution Tank  
T952 – 110,000 Gallon Deionized Water Storage Tank  
T953 – 690 Gallon Caustic Day Tank  
T1101 – 1,263,000 Gallon Molasses Storage (Port Site) Tank  
T1102 – 835,000 Gallon Molasses Storage (Port Site) Tank  
T1103 – 634,000 Gallon Port Site By Product Storage Tank  
T1104 – 634,000 Gallon Port Site By Product Storage Tank  
T1105 – 1,250,000 Gallon Port Site By Product Storage Tank  
T1106 – 18,600 Gallon Port Site Fuel Oil Storage Tank  
T1601 – 8,800 Gallon North Site Diesel Storage Tank  
T2123 – 40,000 Gallon NaOH Storage Tank  
T2124 – 16,000 Gallon KOH Storage Tank  
T2131 – 8,000 Gallon Defoamer Oil Storage Tank  
T2132 – 2,650 Gallon Process Tank (EP-20) (formerly xylene storage tank)  
T2133 – 2,650 Gallon Recovered Process Tank (EP-21)  
(formerly recovered xylene storage tank)  
T2201 – 26,500 Gallon Glucose Storage Tank  
T2202 – 8,000 Gallon Makeup Tank-1  
T2203 – 1,200 Gallon Medium Cushion Tank  
T2204 – 11,000 Gallon Feeding Tank  
T2207 – 800 Gallon Defoamer Tank  
T2208 – 3,950 Gallon Nitric Acid Dilution Tank  
T2209 – 3,950 Gallon Caustic Soda Dilution Tank  
T2210A – 800 Gallon First seed Tank  
T2210B – 800 Gallon First seed Tank

### Description of Emission Unit

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T2210C – 800 Gallon First seed Tank  
T2212A – 264 Gallon Caustic Measuring Tank  
T2212B – 264 Gallon Caustic Measuring Tank  
T2220A – 5,300 Gallon Second Seed Tank  
T2220B – 5,300 Gallon Second Seed Tank  
T2230A – 81,000 Gallon Plant 2 Main Fermentor (EP-30)  
T2230B – 81,000 Gallon Plant 2 Main Fermentor (EP-31)  
T2230C – 81,000 Gallon Plant 2 Main Fermentor (EP-32)  
T2230D – 11,000 Gallon Sub-Fermentor  
T2232A – 30 Gallon Defoamer Feed Tank  
T2232B – 30 Gallon Defoamer Feed Tank  
T2232C – 30 Gallon Defoamer Feed Tank  
T2233 – 530 Gallon Pressure Holding Tank  
T2234 – 53 Gallon NH<sub>3</sub> Scrubbing Tank  
T2235 – 360 Gallon H<sub>2</sub>SO<sub>4</sub> Day Tank  
T2240 – 11,000 Gallon Fructose Tank  
T2241 – 11,000 Gallon CSL Storage Tank  
T2242 – 5,500 Gallon CSL Treatment Tank  
T2243 – 5,500 Gallon H<sub>2</sub>PO<sub>4</sub> Tank  
T2244 – 5,500 Gallon Make-up Tank-2  
T2246 – 1,320 Gallon Make-up Tank-3  
T2250 – 1,320 Gallon Detergent Tank  
T2260 – 26,500 Gallon Hot Water Tank  
T2270 – 1,320 Gallon Foam Receiving Tank  
T2279 – 1,320 Gallon Drain Tank  
T2280 – 53 Gallon Defoamer Tank  
T2301A – 80,000 Gallon Broth Tank  
T2301B – 80,000 Gallon Broth Tank  
T2310A – 530 Gallon Decanter Cushion Tank  
T2310B – 800 Gallon Waste Cake Hopper  
T2311 – 21,000 Gallon Resin Column Feed Tank  
T2321 – 1,320 Gallon Resin Column  
T2322B – 32,000 Gallon Tail Cut Tank  
(formerly T304B in the lysine plant)  
T2323 – 40,000 Gallon Rich Cut Tank  
T2351 – 5,500 Gallon Wastewater Tank  
T2360 – 16,000 Gallon Decolorizing Tank  
T2361 – 360 Gallon Pre-coat Tank  
T2362 – 16,000 Gallon Filtrate Tank  
T2363 – 280 ft<sup>3</sup> Waste Cake Hopper  
T2364 – 250 Gallon Wash Water Tank  
T2372 – 360 Gallon Reverse Filtration Tank  
T2373 – 5,280 Gallon Filtrate Tank 2  
T2392 – 450 Gallon CIP Work Tank  
T2393 – 450 Gallon Acid Wash Tank  
T2394 – 450 Gallon Caustic Wash Tank  
T2413A – 5,700 Gallon Vacuum Pan  
T2413B – 5,700 Gallon Vacuum Pan  
T2413C – 5,700 Gallon Vacuum Pan  
T2413D – 5,700 Gallon Vacuum Pan



Description of Emission Unit

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T2414A – 5,500 Gallon Crystalizer  
T2414B – 5,500 Gallon Crystalizer  
T2415 – 1,320 Gallon ML Tank  
T2420 – 800 Gallon Crystalizer Hot Water Tank  
T2413A – 70 ft<sup>3</sup> Wet Crystal Collector  
T2413B – 70 ft<sup>3</sup> Wet Crystal Collector  
T2413C – 70 ft<sup>3</sup> Wet Crystal Collector  
T2506 – 1000 ft<sup>3</sup> Product Hopper  
T2507 - 470 ft<sup>3</sup> Product Service Hopper  
RC2320A – 31,700 Gallon Resin Column-1  
RC2320B – 31,700 Gallon Resin Column-1  
RC2320C – 31,700 Gallon Resin Column-1  
RC2330A – 40,000 Gallon Resin Column-2  
RC2330B – 40,000 Gallon Resin Column-2  
RC2340A – 9,500 Gallon Resin Column-3  
RC2340B – 9,500 Gallon Resin Column-3  
RC2350A - 9,500 Gallon Resin Column-4  
RC2350B - 9,500 Gallon Resin Column-4  
RS2230 – Xylene Recovery System – Distiller (EP-22)  
T2510 – 360 Gallon Dryer Hot Water Tank  
T2561 – 50 ft<sup>3</sup> Cooled Product Receiver  
T2562 – 82 ft<sup>3</sup> Dry Crystal Collector

**DOCUMENTS INCORPORATED BY REFERENCE**

These documents have been incorporated by reference into this permit.

- 1) Construction Permit Number 122002-002
- 2) Construction Permit Number 1099-021
- 3) Construction Permit Number: 0983-009
- 4) Construction Permit Number: 0983-008
- 5) Construction Permit Number: 0983-007
- 6) Construction Permit Number: 0983-006

## 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.

### Permit Condition PW001

10 CSR 10-6.170

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

##### **Emission Limitation:**

- 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 or 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.

##### **Monitoring/Record Keeping:**

1. The permittee shall conduct inspections of its installation sufficient to determine compliance with this regulation. The source representative would maintain a log noting:
  - a) Whether any air emissions (except water vapor) remain visible in the ambient air beyond the property line of origin;
  - b) Whether the visible emissions were normal for the installation.If no visible or other significant emissions are observed, then no further observations are required. If a violation of this regulation is discovered, the source representative would indicate the cause of the abnormal emissions and any corrective action(s) taken. The source representative will also indicate the total duration of any visible emission incident as part of the log described above. Attachment A contains a log including these record keeping requirements. This log, or an equivalent created by the permittee, must be used to certify compliance with this requirement.
2. The following monitoring schedule must be maintained:
  - a) Monthly observations shall be conducted for a minimum of eight (8) consecutive months after permit issuance. Should no violation of this regulation be observed during this period then-
  - b) Observations must be made once every three months. If a violation is noted, monitoring reverts to monthly.

##### **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 10 CSR 10-6.065(6)(C)1.C.(III).

## Permit Condition PW002

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 new source any visible emissions with an opacity greater than 20%.
2. Exception: 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 60%.

#### Monitoring:

1. The permittee shall conduct opacity readings on the emission unit(s) using the procedures contained in USEPA 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) Monthly observations shall be conducted for a minimum of eight consecutive months after permit issuance. Should no violation of this regulation be observed during this period then-
  - b) Observations must be made once every two (2) months for a period of eight months. If a violation is noted, monitoring reverts to monthly. Should no violation of this regulation be observed during this period then-
  - c) Observations must be made semi-annually (i.e., once per reporting period). Observation shall be conducted during the January-June reporting period and during the July-December reporting period. If a violation is noted, monitoring reverts to monthly.
3. If the source reverts to monthly monitoring at any time, monitoring frequency will progress in an identical manner from the initial monitoring frequency.

#### Record Keeping:

1. The permittee shall maintain records of all observation results (see Attachment B-1 or B-2), 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 equipment malfunctions.
3. The permittee shall maintain records of any Method 9 test performed in accordance with this permit condition (see Attachment B-3).
4. Attachments B-1, B-2 and B-3 contain logs including these record keeping requirements. These logs, or an equivalent created by the permittee, must be used to certify compliance with this requirement.

#### 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, record keeping and reporting requirements of this permit condition shall be submitted semiannually, in the semi-annual monitoring report and annual compliance certification, as required by Section IV of this permit.

**Permit Condition PW003**

10 CSR 10-6.060

**Construction Permits Required**

Construction Permit Number: 0983-006 to 0983-009

**Emission Limitation:**

It shall be a condition of this permit that the provisions of 10 CSR 10-3.090 not be violated. Should any such violations occur, actions to correct the cause of such violations shall be initiated immediately, and the facility shall cease all operations which cause or contribute to any such violations. Failure to comply with the terms of this condition shall be grounds for revocation of this permit. [Permit No. 0983-006 to 0983-009, Condition a]

**Monitoring:**

The permittee shall conduct monitoring as required by the corrective action plan.

**Record keeping:**

The permittee shall maintain records as required by the corrective action plan.

**Reporting:**

The permittee shall submit a corrective action plan for odors if requested by the Director.

### 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.

<b>EU0010</b> <b>Utility Plant Process Boiler - A</b>	
General Description:	Process Boiler – A: Natural gas/distillate oil fired process boiler, 77.9 million British thermal units per hour (MMBtu/hr), Constructed 1983
Manufacturer/Model #:	Nebraska Boiler/NS-E-62
EIQ Reference # (2004):	EP-01

<b>Permit Condition EU0010-001</b>
10 CSR 10-3.060 <b>Maximum Allowable Emissions of Particulate Matter from Fuel Burning Equipment Used for Indirect Heating</b>

**Emission Limitation:**

The permittee shall not emit particulate matter in excess of 0.20 pounds per million British thermal units (Btus) of heat input.

**Operational Limitation/Equipment Specifications:**

This emission unit shall be limited to burning pipeline grade natural gas and fuel oil no. 2.

**Monitoring/Record keeping:**

1. The permittee shall maintain on the premises of the installation calculations demonstrating compliance with this rule (see Attachment C).
2. The calculation shall be made available immediately for inspection to the Department of Natural Resources' personnel upon request.

**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 10 CSR 10-6.065(6)(C)1.C.(III).

**Permit Condition EU0010-002**

10 CSR 10-6.260<sup>1</sup>

**Restriction of Emission of Sulfur Compounds**

**Emission Limitation:**

1. No person shall cause or allow emissions of sulfur dioxide into the atmosphere from any indirect heating source in excess of eight pounds of sulfur dioxide per million Btus actual heat input averaged on any consecutive three hour time period.
2. No person shall cause of 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]

**Operational Limitation/Equipment Specifications:**

This emission unit shall be limited to burning pipeline grade natural gas and fuel oil no. 2.

**Monitoring/Record Keeping:**

The permittee shall maintain an accurate record of the sulfur content of fuel used. Fuel purchase receipts, analyzed samples or certifications that verify the fuel type and sulfur content will be acceptable.

**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 10 CSR 10-6.065(6)(C)1.C.(III).

**EU0020**

**Utility Plant Process Boiler - B**

General Description:	Process Boiler – B: Natural gas/distillate oil fired process boiler, 77.7 MMBtu/hr, Constructed 1990
Manufacturer/Model #:	Nebraska Boiler/NS-E-62
EIQ Reference # (2004):	EP-02

**Permit Condition EU0020-001**

10 CSR 10-6.070

**New Source Performance Regulations**

40 CFR Part 60, Subpart Dc

**Standards of Performance for Industrial-Commercial-Institutional Steam Generating Units**

**Emission Limitation:**

1. Standard for sulfur dioxide:
  - a) On and after the date on which the initial performance test is completed or required to be completed under §60.8 of 40 CFR part 60, 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 SO<sub>2</sub> in excess of 215 nanograms per joule (ng/J) (0.50 lb/million Btu) heat input; 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)]

<sup>1</sup> 10 CSR 10-6.260(3)(B) is state-only requirement.

- b) 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)]
  - c) The SO<sub>2</sub> emission limits and fuel oil sulfur limits apply at all times, including periods of startup, shutdown, and malfunction. [§60.42c (i)]
2. Standard for particulate matter:
- a) On and after the date on which the initial performance test is completed or required to be completed under §60.8 of 40 CFR part 60, whichever date comes first, no owner or operator of an affected facility that combusts oil and has a heat input capacity of 8.7 megawatts (MW) (30 million Btu/hr) or greater shall cause to be discharged into the atmosphere from that affected facility any gases that exhibit greater than 20 percent opacity (6-minute average), except for one 6-minute period per hour of not more than 27 percent opacity. [§60.43c (c)]
  - b) (b) The opacity standards apply at all times, except during periods of startup, shutdown, or malfunction. [§60.43c (d)]

**Monitoring:**

- 1. Sulfur dioxide:  
The Permittee shall monitor the sulfur dioxide emissions by maintaining the fuel supplier certification of the oil combusted.
- 2. Particulate Matter (Opacity):  
When the emission unit is burning distillate oil, the following conditions shall apply:
  - a) The permittee shall follow the opacity monitoring and record keeping requirements as stated in the Permit Condition PW002.
  - b) The permittee shall conduct an annual opacity measurement on the emission unit by USEPA Test Method 9 with a certified Method 9 observer. (Note if distillate oil is not used during the emission year, a Method 9 test would not be required.)

**Record keeping:**

- 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 numbers 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 for 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 day.  
[§60.48c(g)]
- 3. The permittee shall maintain all records required under §60.48c for a period of two (2) years following the date of such record. [§60.48c(i)]
- 4. The permittee shall maintain records of the annual USEPA Method 9 opacity test and any other Method 9 test performed in accordance with this permit condition. (Note if distillate oil is not used during the emission year, a Method 9 test would not be required.)

**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 represent 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 by the 30th day following the end of the reporting period. [§60.48c(d), (e)(1) & (e)(11)]

<b>EU0030</b>	
<b>T106 – Plant 1/Utility Plant Hydrochloric Acid Storage Tank</b>	
General Description:	Hydrochloric acid storage tank with emissions controlled by packed tower with mist eliminator, Constructed 1989
Manufacturer/Model #:	Tank Manufacturer: Harrison Fiberglass Scrubber Manufacturer: Austin
EIQ Reference # (2004):	EP-03

<b>Permit Condition EU0030-001</b>	
10 CSR 10-6.060 <b>Construction Permits Required</b> Construction Permit Number 1099-021	

**Emission Limitation:**

The permittee shall install and operate a scrubbing system to control hydrogen chloride emissions from the hydrochloric acid storage tank. [Permit No. 1099-021, Special Condition #6]

**Monitoring:**

The scrubbing system shall be maintained and operated according to the manufacturer's specification. [Permit No. 1099-021, Special Condition #6]

**Record keeping:**

The permittee shall maintain records on each maintenance inspection and repair, replacement, or other corrective action. The maintenance inspection for all of the materials listed in the monitoring section shall be signed by the responsible maintenance official and show the date of each inspection, the problem identified, a description of the repair, replacement, or other corrective action taken, and the date of the repair, replacement, or other corrective action taken.

**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 10 CSR 10-6.065(6)(C)1.C.(III).



<b>EU0040, EU0060 and EU0070</b>			
<b>Plant 1 Filter Aid Vent, Hopper and Bagging, and Crystal Conveyor Belt</b>			
EU ID	EIQ Reference # (Year)	General Description	Manufacturer/ Model #
EU0040	EP-25 (2004)	Plant 1 filter aid vent with fabric filter for particulate control, Constructed 1999	Not Available
EU0060	EP-27 (2004)	Plant 1 hopper and bagging vent with fabric filter for particulate control, Constructed 1999	Not Available
EU0070	EP-29 (2004)	Plant 1 dry crystal conveyor belt with fabric filter for particulate control, Constructed 1999	Not Available

<b>Permit Condition EU0040-001, EU0060-001 and EU0070-001</b>
10 CSR 10-6.400 <b>Restriction of Emission of Particulate Matter from Industrial Processes</b>

**Emission Limitation:**

1. The permittee shall not emit particulate matter in excess of:
  - 6.95 lbs/hr from plant 1 filter aid vent (EU0040);
  - 4.03 lbs/hr from plant 1 hopper and bagging vet (EU0060); and
  - 4.03 lbs/hr from plant 1 dry crystal conveyor belt (EU0070);
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:**

The permittee shall comply with the monitoring requirements listed below:

- Fabric Filters operation and maintenance:
  - a) Check and document the fabric filters pressure drop weekly. If the pressure drop falls out of the normal operating range, specified by the manufacturer, corrective action shall be taken within eight (8) hours to return the pressure drop to normal.
  - b) Check the cleaning sequence of the fabric filters monthly.
  - c) Thoroughly inspect bags for leaks and wear quarterly.
  - d) Inspect every six (6) months all components that are not subject to wear or plugging, including structural components, housing, ducts and hoods.
  - e) If leaks or abnormal conditions are detected the appropriate measures for remediation shall be implemented within eight (8) hours. Bag replacements should be documented. Maintain a written record of the inspections and any action resulting from the inspections. All instruments and control equipment shall be calibrated, maintained, and operated according to the manufacture specifications.

**Record Keeping:**

1. The permittee shall document all pressure drop readings (see Attachment D-1).
2. All inspections, corrective actions, and instrument calibration shall be recorded (see Attachment D-2).
3. Attachments D-1 and D-2 contain logs including these record keeping requirements. These logs, or an equivalent created by the permittee, must be used to certify compliance with this requirement.
4. Records may be kept in either written or electronic form.

**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 that the emission unit(s) exceeded the emission limitation(s) and/or pressure drop range.

2. Reports of any deviations from monitoring other than the pressure drop range, record keeping and reporting requirements of this permit condition shall be submitted semiannually, in the semi-annual monitoring report and annual compliance certification, as required by Section IV of this permit.

<b>EU0080 through EU0090 Plant 2 HCl Storage Tanks</b>			
EU ID	EIQ Reference # (Year)	General Description	Manufacturer/ Model #
EU0080	EP-23 (2004)	T2122 – 40,000 gallon plant 2 HCl storage tank with packed towers with mist eliminator (scrubber) for HCl vapor control, Constructed 1983	Not Available
EU0090	EP-37 (2004)	T951 – 475 gallon plant 2 HCl day tank with packed towers with mist eliminator (scrubber) for HCl vapor control, Constructed 1999	Not Available

<b>Permit Condition EU0080-001 through EU0090-001</b>
10 CSR 10-6.060
<b>Construction Permits Required</b>
Construction Permit Number 122002-002

**Operational Limitation/Equipment Specifications:**

*Control Requirement:* BioKyowa shall control emissions from the hydrogen chloride (HCl) storage tank (EU0080) and the HCl day tank (EU0090) using a packed tower with mist eliminator. The packed tower with mist eliminator shall be operated and maintained in accordance with manufacturer’s specifications.

[Permit No. 122002-002, Special Condition 4.B]

<b>EU0100</b> <b>Plant 2 Decolorizing Process</b>	
General Description:	Plant 2 Decolorizing process vent with scrubber for PM control, Constructed 2003
Manufacturer/Model #:	Not available
EIQ Reference # (2004):	EP-36

<b>Permit Condition EU0100-001</b>	
10 CSR 10-6.060	
<b>Construction Permits Required - Construction Permit Number 122002-002</b>	
10 CSR 10-6.400	
<b>Restriction of Emission of Particulate Matter from Industrial Processes</b>	

**Emission Limitation:**

1. The permittee shall not emit particulate matter in excess of 0.43 lbs/hr from this emission unit. [10 CSR 10-6.400]
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. [10 CSR 10-6.400]
3. BioKyowa shall not use more than 805 pounds of carbon black in the decolorizing system (EU0100) in any consecutive 24-hour period. [Permit No. 122002-002, Special Condition 3.A]

**Operational Limitation/Equipment Specifications:**

*Control Requirement:* BioKyowa shall control emissions from the decolorizing process using a scrubber at all times the decolorizing process is in operation. The scrubber shall be operated and maintained in accordance with manufacturer's specifications. [Permit No. 122002-002, Special Condition 4.C]

**Monitoring:**

1. Monitor and record the pressure drop across the scrubber once per week while the scrubber is operating in order to identify changes that may indicate a need for maintenance.
2. Perform manufacturer's maintenance at the recommended intervals on the liquid pumps, recirculating pumps and discharge pumps, in addition to exhaust system and scrubber fans and motors associated with those pumps and fans.
3. Cleaning of the scrubber internals at intervals sufficient to prevent buildup of solids or other fouling.
4. Inspection of the scrubber quarterly for continuous operation of over three months, (for intermittent usage inspect before start-up), for nozzles, baffles, trays and other internal components.
5. Initiation of corrective action within one working day of detection of an operating problem and complete all corrective actions as soon as practicable.

**Record keeping:**

1. The permittee shall maintain the following records:
  - a) Pressure drop across the scrubber.
  - b) Maintenance, inspections, calibration and any action resulting from these actions.
  - c) Daily carbon black usage.
2. Attachment E, *Daily Carbon Black Compliance worksheet*, or equivalent form approved by the Air Pollution Control Program shall be used to demonstrate compliance with the 805 pounds daily usage limit. [Permit No. 122002-002, Special Condition 3.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 that the records indicate the 805 pounds daily usage limit is exceeded. [Permit No. 122002-002, Special Condition 3.C]

2. Reports of any deviations from monitoring other than the pressure drop range, record keeping and reporting requirements of this permit condition shall be submitted semiannually, in the semi-annual monitoring report and annual compliance certification, as required by Section IV of this permit.

<b>EU0110 through EU0120</b>			
<b>Plant 2 Product Loading and Dry Crystal Conveyor System</b>			
EU ID	EIQ Reference # (Year)	General Description	Manufacturer/ Model #
EU0110	EP-24 (2004)	Plant 2 product loading vent with fabric filter for PM/PM <sub>10</sub> control, Constructed 1999	Not Available
EU0120	EP-38 (2004)	Plant 2 dry crystal conveyor system vent with fabric filter for PM/PM <sub>10</sub> control, Constructed 2003	Not Available

<b>Permit Condition EU0110-001 through EU0120-001</b>
10 CSR 10-6.060 <b>Construction Permits Required - Construction Permit Number 122002-002</b> 10 CSR 10-6.400 <b>Restriction of Emission of Particulate Matter from Industrial Processes</b>

**Emission Limitation:**

1. The permittee shall not emit particulate matter in excess of: [10 CSR 10-6.400]
  - 4.37 lbs/hr from plant 2 product loading vent (EU0110); and
  - 6.95 lbs/hr from plant 2 dry crystal conveyor system vent (EU0120).
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. [10 CSR 10-6.400]

**Operational Limitation/Equipment Specifications:**

BioKyowa shall control emissions from the product loading and dry crystal conveying system using baghouses as specified in the construction permit application. The baghouses shall be operated and maintained in accordance with manufacturer’s specifications. The baghouse shall be equipped with a gauge or meter which indicates the pressure drop across the control device. These gauges or meters shall be located such that the Department of Natural Resources’ employees may easily observe them. Replacement filters for the baghouses shall be kept on hand at all times. The bags shall be made of fibers appropriate for operating conditions expected to occur (i.e. temperature limits, acidic and alkali resistance, and abrasion resistance).  
 [Permit No. 122002-002, Special Condition 4.D. 1)]

**Monitoring:**

The permittee shall comply with the monitoring requirements listed below:

- Baghouses operation and maintenance:
  - a) BioKyowa shall monitor and record the operating pressure drop across the baghouses and drum filters at least once every twenty four (24) hours. The operating pressure drop shall be maintained within the design conditions specified by the manufacturer's performance warranty.  
 [Permit No. 122002-002, Special Condition 4.D. 2)]
  - b) Check the cleaning sequence of the fabric filters monthly.
  - c) Thoroughly inspect bags for leaks and wear quarterly.
  - d) Inspect every six (6) months all components that are not subject to wear or plugging, including structural components, housing, ducts and hoods.

- e) If leaks or abnormal conditions are detected the appropriate measures for remediation shall be implemented within eight (8) hours. Bag replacements should be documented. Maintain a written record of the inspections and any action resulting from the inspections. All instruments and control equipment shall be calibrated, maintained, and operated according to the manufacture specifications.

**Record Keeping:**

1. The permittee shall document all pressure drop readings (see Attachment D-1).
2. The permittee shall maintain an operating and maintenance log for the baghouses and drum filters which shall include the following: (see Attachment D-2) [Permit No. 122002-002, Special Condition 4.D. 3])
  - a) Incidents of malfunction, with impact on emissions, duration of event, probable cause, and corrective actions; and
  - b) Maintenance activities, with inspection schedule, repair actions, replacements and instrument calibration.
3. Attachments D-1 and D-2 contain logs including these record keeping requirements. These logs, or an equivalent created by the permittee, must be used to certify compliance with this requirement.
4. Records may be kept in either written or electronic form.

**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 that the emission unit(s) exceeded the emission limitation(s) and/or pressure drop range.
2. Reports of any deviations from monitoring other than the pressure drop range, record keeping and reporting requirements of this permit condition shall be submitted semiannually, in the semi-annual monitoring report and annual compliance certification, as required by Section IV of this permit.

<b>EU0130</b> <b>Utility Plant Process Boiler - C</b>	
General Description:	Process Boiler – C: Natural gas/distillate oil fired process boiler, 100 MMBtu/hr, Constructed 2000
Manufacturer/Model #:	Nebraska Boiler/”O” NOS-2A-67
EIQ Reference # (2004):	EP-17

<b>Permit Condition EU0130-001</b>  10 CSR 10-6.070 <b>New Source Performance Regulations</b> 40 CFR Part 60, Subpart Dc <b>Standards of Performance for Industrial-Commercial-Institutional Steam Generating Units</b>
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**Emission Limitation:**

1. Standard for sulfur dioxide:
  - a) On and after the date on which the initial performance test is completed or required to be completed under §60.8 of 40 CFR part 60, 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 SO<sub>2</sub> in excess of 215 ng/J (0.50 lb/million Btu) heat input; 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)]
  - b) 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)]
  - c) The SO<sub>2</sub> emission limits and fuel oil sulfur limits apply at all times, including periods of startup, shutdown, and malfunction. [§60.42c (i)]
2. Standard for particulate matter:
  - a) On and after the date on which the initial performance test is completed or required to be completed under §60.8 of 40 CFR part 60, whichever date comes first, no owner or operator of an affected facility that combusts oil and has a heat input capacity of 8.7 MW (30 million Btu/hr) or greater shall cause to be discharged into the atmosphere from that affected facility any gases that exhibit greater than 20 percent opacity (6-minute average), except for one 6-minute period per hour of not more than 27 percent opacity. [§60.43c (c)]
  - b) The opacity standards apply at all times, except during periods of startup, shutdown, or malfunction. [§60.43c (d)]

**Monitoring:**

1. Sulfur dioxide:

The Permittee shall monitor the sulfur dioxide emissions by maintaining the fuel supplier certification of the oil combusted.
2. Particulate Matter (Opacity):

When the emission unit is burning distillate oil, the following conditions shall apply:

  - a) The permittee shall follow the opacity monitoring and record keeping requirements as stated in the Permit Condition PW002.
  - b) The permittee shall conduct an annual opacity measurement on the emission unit by USEPA Test Method 9 with a certified Method 9 observer. (Note if distillate oil is not used during the emission year, a Method 9 test would not be required.)

**Record keeping:**

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 numbers 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 for 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 day.  
[§60.48c(g)]
3. The permittee shall maintain all records required under §60.48c for a period of two (2) years following the date of such record. [§60.48c(i)]
4. The permittee shall maintain records of the annual USEPA Method 9 opacity test and any other Method 9 test performed in accordance with this permit condition. (Note if distillate oil is not used during the emission year, a Method 9 test would not be required.)

**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 represent 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 by the 30th day following the end of the reporting period. [§60.48c(d), (e)(1) & (e)(11)]

**Permit Condition EU0130-002**

10 CSR 10-6.060

**Construction Permits Required - Construction Permit Number 1099-021**

**Emission Limitation:**

Biokyowa shall emit less than 39.7 tons of SO<sub>x</sub> from the Process Boiler – C (EP – 17) in any consecutive 12-month period when burning fuel oil. [Permit No. 1099-021, Special Condition 1]

**Monitoring/Record keeping:**

Biokyowa shall record the monthly and the sum of the most recent consecutive 12-months SO<sub>x</sub> emissions in tons from the Process Boiler – C. These records shall be kept on-site for five years and shall be made immediately available for inspection to Department of Natural Resources' (DNR) personnel upon request. Attachment F, *Monthly SO<sub>x</sub> Emission Tracking Record*, or an equivalent form shall be used for this purpose.

[Permit No. 1099-021, Special Condition 2]

**Reporting:**

Biokyowa shall report to the Air Pollution Control Program's Enforcement Section, P.O. Box 176 Jefferson City, MO 65102, no later than ten days after the end of the month during which the records required by Special Condition No. 2 show that the emission limitation of Special Condition No. 1 of Permit No. 1099-021 has been exceeded.

[Permit No. 1099-021, Special Condition 5]

<b>EU0140 through EU0170</b>			
<b>Plant 2 Methanol Process, Two Plant 2 Methanol Storage Tanks, and Methanol Waste Water Treatment</b>			
EU ID	EIQ Reference # (Year)	General Description	Manufacturer/ Model #
EU0140	EP-18 (2004)	Plant 2 methanol process with catalytic oxidation unit	Not Available
EU0150	EP-19a (2004)	T2441 – 16, 000 gallon plant 2 methanol storage tank	Not Available
EU0160	EP-19b (2004)	T2442 – 16,0000 gallon plant 2 methanol storage tank,	Not Available
EU0170	EP-28 (2004)	Methanol waste water treatment	Not available

<b>Permit Condition EU0140-001 through EU0170-001</b>
10 CSR 10-6.060 <b>Construction Permits Required - Construction Permit Number 122002-002</b> 10 CSR 10-6.065(6)(C)1.C.(I)(b) <b>Operating Permits – Monitoring and Related Record Keeping and Reporting Requirements</b>

**Emission Limitation:**

BioKyowa shall emit less than 10.0 tons of methanol (CAS Number 67-56-1) from the methanol process (EU0140), the methanol storage tanks (EU0150 & EU0160), and from the methanol wastewater treatment process (EU0170) in any consecutive 12-month period. [Permit No. 122002-002, Special Condition 2.A.]

**Operational Limitation/Equipment Specifications:**

1. BioKyowa shall control emissions from the methanol process (EU0140) using a catalytic oxidizer at all times the methanol process is in operation. The catalytic oxidizer shall be operated and maintained in accordance with the manufacturer’s specifications. [Permit No. 122002-002, Special Condition 4.A.]
2. BioKyowa shall control emissions from the methanol storage tanks (EU0150 & EU0160) using a packed tower with mist eliminator. The packed scrubber with mist eliminator shall be operated and maintained in accordance with the manufacturer’s specifications. [Permit No. 122002-002, Special Condition 4.B.]

**Monitoring:**

1. Catalytic oxidizer:
  - a) The permittee shall conduct performance testing on the catalytic oxidation unit once every five years or once per Title V permit term to determine the control efficiency of the catalytic oxidation unit and to set operating parameter limits necessary to maintain the catalytic oxidation unit at the tested efficiencies.
  - b) In addition to conducting performance tests, the permittee must install, operate, and maintain systems for the measurement and recording of the minimum temperature of the gas stream immediately before the catalyst bed and the minimum temperature difference across the catalyst bed. The permittee shall monitor the temperature of the gas stream immediately before and after the catalyst bed, and calculate the temperature difference across the catalyst bed, at least once every 15 minutes during the period in which the catalytic oxidation unit is controlling HAP from an emission stream. A chart recorder can be used for this purpose. Operation of the catalytic oxidation unit with excursions of parameter values established during the performance test or tests will require initiation of corrective action.
  - c) Each monitoring device shall be certified by the manufacturer to be accurate to within five percent and shall be calibrated in accordance with the manufacturer’s instructions but not less frequently than once per year.
  - d) The permittee shall initiate procedures for corrective action within one working day of detection of an operating problem and complete all corrective actions as soon as practicable.
2. Packed Tower with Mist Eliminator:



- a) The permittee shall conduct performance testing on the packed tower with mist eliminator once every five years or once per Title V permit term to determine the control efficiency of the packed tower with mist eliminator unit and to set operating parameter limits necessary to maintain the packed tower with mist eliminator unit at the tested efficiencies.
- b) In addition to conducting performance tests, the permittee must install, operate, and maintain systems for the measurement and recording of the liquid flow rate, and outlet gas temperature. These parameters must be monitored continuously and recorded at least once per shift while the packed tower with mist eliminator is operating. Excursions of parameter values established during the performance test or tests will require initiation of corrective action.
- c) Each monitoring device shall be certified by the manufacturer to be accurate to within five percent and shall be calibrated in accordance with the manufacturer's instructions but not less frequently than once per year.
- d) The permittee shall monitor and record the static pressure drop across the control device once per shift while the packed tower with mist eliminator is operating in order to identify changes that may indicate a need for maintenance.
- e) The permittee shall perform the manufacturer's recommended maintenance at the recommended intervals on fresh solvent pumps, discharge pumps and other liquid pumps, in addition to exhaust system and packed tower fans and motors associated with those pumps and fans.
- f) The permittee shall perform cleaning of the packed tower internals and mist eliminators at intervals sufficient to prevent buildup of solids or other fouling.
- g) The permittee shall inspect the packed tower at intervals of no less than 3 months including:
  - i) Cleaning or replacement of any plugged spray nozzles or other liquid delivery devices;
  - ii) Repair or replacement of missing, misaligned, or damaged baffles, trays, or other internal components;
  - iii) Repair or replacement of droplet eliminator elements as needed;
  - iv) Repair or replacement of heat exchanger elements used to control the temperature of fluids entering or leaving the scrubber; and
  - v) Adjustment of damper settings to maintain the required air flow.
- h) The permittee shall initiate corrective action within one working day of detection of an operating problem and complete all corrective actions as soon as practicable.

**Performance Testing:**

1. The date on which performance tests are conducted must be prearranged with the Air Pollution Control Program a minimum of thirty (30) days prior to the proposed test date so that the Program may arrange a pretest meeting, if necessary, and assure that the test date is acceptable for an observer to be present. A completed Proposed Test Plan form may serve the purpose of notification and must be approved by the Air Pollution Control Program prior to conducting the required emission testing.
2. The permittee shall conduct performance testing during periods of representative conditions at the maximum process/production rate, or within ten percent of this rate, not to include periods of startup, shutdown, or malfunction.
3. The permittee shall provide or cause to be provided, performance testing facilities as follows:
  - a) Safe sampling platform(s).
  - b) Safe access to sampling platform(s).
  - c) Utilities for sampling and testing equipment.
  - d) Sampling ports adequate for test methods applicable to this installation. This includes:
    - i) Constructing the air pollution control system such that volumetric flow rates and pollutant emission rates can be accurately determined by applicable test methods and procedures;
    - ii) Providing a stack or duct with cyclonic flow averaging less than twenty degrees (20°) over all test points during the performance tests as stated in 40 CFR Part 60, Appendix A, Method 1; and
    - iii) Removal of the port caps twenty-four (24) hours prior to testing to verify both their removability as well as full-diameter clearance to the stack; caps may be retained hand tight.
4. Control Efficiency:

- a) The permittee shall conduct a performance test for each process or control device to measure simultaneously the mass flows of methanol at the inlet and the outlet of the control device.
  - b) Compliance shall be determined by the average of three consecutive runs or by the average of any three of four consecutive runs. Each run shall be conducted under conditions representative of normal process operations.
5. Operating Parameter Limits:
- a) Catalytic oxidizer: During the performance test for each emission control device, the permittee shall establish site-specific operating parameter values for the minimum temperature of the gas stream immediately before the catalyst bed and the minimum temperature difference across the catalyst bed.
  - b) Packed Tower with Mist Eliminator: During the performance test for each emission control device, the permittee shall establish site-specific operating parameter values for the liquid flow rate and outlet gas temperature.
  - c) During the emission test, each operating parameter must be monitored continuously and recorded with sufficient frequency to establish a representative average value for that parameter, but no less frequently than once every 15 minutes.
  - d) The permittee shall determine the operating parameter monitoring values as the averages of the values recorded during any of the runs for which results are used to establish the collection efficiency.
  - e) The permittee may conduct multiple performance tests to establish alternative compliant operating parameter values.
  - f) The permittee may reestablish compliant operating parameter values as part of any performance test that is conducted subsequent to the initial test or tests.

**Test Methods:**

1. The following test methods (or any equivalent methods with MDNR approval) in Appendix A of 40 CFR part 60 shall be used to determine compliance.
  - a) Method 1 or 1A, to determine the number and location of sampling points, with the exception that no traverse point shall be within one inch of the stack or duct wall;
  - b) Method 2, to determine gas velocity and volumetric flow rate;
  - c) Method 3, to determine the molecular weight of the stack gas;
  - d) Method 4, to determine the moisture content of the stack gas; and
2. Concentration measurements shall be adjusted to negate the dilution effects of introducing nonaffected gaseous streams into the vent streams prior to control or measurement. The following methods are specified for concentration measurements of compounds:
  - a) Method 18, to determine HAP concentration in any control device efficiency determination.
  - b) Method 308 - Procedure for Determination of Methanol Emission from Stationary Sources.

**Record keeping:**

The permittee shall maintain the following records:

1. The minimum temperature of the gas stream immediately before the catalyst bed;
2. The minimum temperature difference across the catalyst bed;
3. Calibration and manufacturer certification that monitoring devices are accurate to within 5 percent;
4. All records of corrective action;
5. The permittee shall record the monthly and the sum of the most recent consecutive 12-months methanol emissions in tons from the installation specified in Special Condition 2.A. of Construction Permit Number: 122002-002. These records shall be kept on-site for five years and shall be made immediately available for inspection to Department of Natural Resources' personnel upon request. Attachment G, *Monthly Methanol Compliance Worksheet*, or an equivalent form shall be used for this purpose; and
6. All results of initial or subsequent performance test.

**Reporting:**

1. The permittee shall submit two copies of a written report of the performance test results to the Director of the Air Pollution Control Program within 45 days of completion of any required testing. The report must

included legible copies of the raw data sheets, analytical instrument laboratory data, and complete sample calculations from the required EPA Method for at least one sample run.

2. The performance test report is to fully account for the control efficiency and all operational parameters addressed in the permit condition.
3. The permittee shall report in writing any noncompliance with any of the operational parameters or emission limits established by 10 CSR 10-6.065, which require record keeping and the nature and cause of the noncompliant event. The Air Pollution Control Program shall be notified within ten days after the occurrence of the noncompliant event. The report shall be sent to: Air Pollution Control Enforcement Section, P.O. Box 176, Jefferson City, MO 65102.

## IV. Core Permit Requirements

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.

### **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 (a.) 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 (a.) 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 for renewal of this operating permit no sooner than eighteen months, nor later than six months, prior to the expiration date of this operating permit. The permittee shall retain the most current operating permit issued to this installation on-site and shall immediately make such permit available to any Missouri Department of Natural Resources personnel upon request.

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

1. The permittee shall complete and submit an Emission Inventory Questionnaire (EIQ) in accordance with the requirements outlined in this rule.
2. 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 to satisfy the requirements of the Federal Clean Air Act, Title V.
3. The fees shall be due April 1 each year for emissions produced during the previous calendar year. The fees shall be payable to the Department of Natural Resources and shall be accompanied by the Emissions Inventory Questionnaire (EIQ) form or equivalent approved by the director.

**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 10-6.180, 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 10-3.030, Open Burning Restrictions**

1. The permittee shall not conduct, cause, permit or allow a salvage operation, the disposal of trade wastes or burning of refuse by open burning.
2. Exception - Open burning of trade waste or vegetation may be permitted only when it can be shown that open burning is the only feasible method of disposal or an emergency exists which requires open burning.
3. Any person intending to engage in open burning shall file a request to do so with the director. The request shall include the following:
  - a) The name, address and telephone number of the person submitting the application; The type of business or activity involved; A description of the proposed equipment and operating practices, the type, quantity and composition of trade wastes and expected composition and amount of air contaminants to be released to the atmosphere where known;
  - b) The schedule of burning operations;
  - c) The exact location where open burning will be used to dispose of the trade wastes;
  - d) Reasons why no method other than open burning is feasible; and
  - e) Evidence that the proposed open burning has been approved by the fire control authority which has jurisdiction.
4. Upon approval of the open burning permit application by the director, the person may proceed with the operation under the terms of the open burning permit. Be aware that such approval shall not exempt BioKyowa from the provisions of any other law, ordinance or regulation.
5. The permittee shall maintain files with letters from the director approving the open burning operation and previous DNR inspection reports.

**10 CSR 10-3.090, Restriction of Emission of Odors**

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 requirement is not federally enforceable.**

**10 CSR 10-6.080, Emission Standards for Hazardous Air Pollutants**

**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 10-6.250, 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 record keeping 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.

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

### Permit Duration

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

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.

### General Record Keeping and Reporting Requirements

10 CSR 10-6.065(6)(C)1.C

#### I) Record Keeping

- 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.

#### II) Reporting

- A) The permittee shall submit a report of all required monitoring by:
  - 1) October 1st for monitoring which covers the January through June time period, and
  - 2) April 1st for monitoring which covers the July through December time period.
  - 3) 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.
- B) Each report must identify any deviations from emission limitations, monitoring, record keeping, reporting, or any other requirements of the permit, this includes deviations or Part 64 exceedances.
- C) All reports shall be submitted to the Air Pollution Control Program, Enforcement Section, P.O. Box 176, Jefferson City, MO 65102.
- 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.
  - 1) Notice of any deviation resulting from an emergency (or upset) condition as defined in paragraph (6)(C)7 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 you wish 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 that you 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.
  - 2) Any deviation that poses an imminent and substantial danger to public health, safety or the environment shall be reported as soon as practicable.

- 3) Any other deviations identified in the permit as requiring more frequent reporting than the permittee's semiannual report shall be reported on the schedule specified in the permit.
  - 4) These supplemental reports shall be submitted to the Air Pollution Control Program, Enforcement Section, P.O. Box 176, Jefferson City, MO 65102, 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.

### **Risk Management Plans Under Section 112(r)**

10 CSR 10-6.065(6)(C)1.D.

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.

### **Severability Clause**

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

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.

### **General Requirements**

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

- 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 re-issuance, or termination, or the filing of a notification of planned changes or anticipated noncompliance, will 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.

### **Incentive Programs Not Requiring Permit Revisions**

10 CSR 10-6.065(6)(C)1.H.

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.

### **Reasonably Anticipated Operating Scenarios**

10 CSR 10-6.065(6)(C)1.I.

Not applicable.

### **Emissions Trading**

10 CSR 10-6.065(6)(C)1.J.

Not applicable.

### **Compliance Requirements**

10 CSR 10-6.065(6)(C)3.

- I) Any document (including reports) required to be submitted under this permit shall contain a certification signed by the responsible official.
- II) 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.
- III) All progress reports required under an applicable schedule of compliance shall be submitted semiannually (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.
- IV) 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 1<sup>st</sup>, unless the applicable requirement specifies more frequent submission. These certifications shall be submitted to EPA Region VII, 901 North 5<sup>th</sup> Street, Kansas City, Kansas 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.

### **Permit Shield**

10 CSR 10-6.065(6)(C)6.

- I) 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.
- II) 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 administrator's authority to obtain information, or
  - E) Any other permit or extra-permit provisions, terms or conditions expressly excluded from the permit shield provisions.

### **Emergency Provisions**

10 CSR 10-6.065(6)(C)7.

- I) An emergency or upset as defined in 10 CSR 10-6.065(6)(C)7. 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.
- II) 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.

### **Operational Flexibility**

10 CSR 10-6.065(6)(C)8.

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 and the Administrator 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 established 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.

- I) 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), record keeping, 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 and to the Administrator, 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 this agency shall place a copy with the permit in the public file. Written notice shall be provided to the administrator and this agency 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 administrator and the permitting authority as soon as possible after learning of the need to make the change.
  - B) The permit shield shall not apply to these changes.

### **Off-Permit Changes**

10 CSR 10-6.065(6)(C)9.

- I) 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 permitting authority and to the administrator no later than the next annual emissions report. This notice shall not be required for changes that are insignificant activities under paragraph (6)(B)3. of this rule. 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.

### **Responsible Official**

10 CSR 10-6.020(2)(R)12.

The application utilized in the preparation of this was signed by William Hinckley, Plant Manager. 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.

### **Reopening Permit For Cause**

10 CSR 10-6.065(6)(E)6.

In accordance with 10 CSR 10-6.065(6)(E)6.A., this permit may be reopened with 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) MDNR 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 the permit has a remaining term of less than three years, the effective date of the requirement is later than the date on which the permit is due to expire, or 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) MDNR or EPA determines that the permit must be reopened and revised to assure compliance with applicable requirements.

**Statement of Basis**

10 CSR 10-6.065(6)(E)1.C.

This permit is accompanied by a statement setting forth the legal and factual basis for the draft 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.







Attachment B-2

**10 CSR 10-6.220 Compliance Demonstration**

This attachment or an equivalent may be used to help meet the record keeping requirements of Permit Condition PW002.

Method 22 (Outdoor) Observation Log		
Emission Unit		
Observer	Date	
Sky Conditions		
Precipitation		
Wind Direction	Wind Speed	
Sketch process unit: Indicate the position relative to the source and sun; mark the potential emission points and/or the observing emission points.		
Observation Clock Time	Observation Period Duration (minute:second)	Accumulative Emission Time (minute:second)
Begin Observation		
End Observation		

Attachment B-3

**10 CSR 10-6.220 Compliance Demonstration**

This attachment or an equivalent may be used to help meet the record keeping requirements of Permit Condition PW002.

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 C

This attachment may be used to demonstrate compliance with 10 CSR 10-3.060 *Maximum Allowable Emission of Particulate Matter from Fuel Burning Equipment Used for Indirect Heating*

Emission Limit for EU0010 (new, i.e. installed after February 24, 1971):

$$1.31 Q^{-0.338} = 1.31(256.65)^{-0.338} = 0.20 \text{ lb / MMBtu}$$

Where Q is the total heat input of all indirect heating sources at the installation.

The following equipment was used to obtain the total heat input (Q) for the above equation:

Equipment	Heat Input (MMBtu/hr)
Process Boiler A (EU0010)	77.90
Process Boiler B (EU0020)	77.70
Process Boiler C (EU0130)	100.00
WWTP Package Boiler	1.05
<b>TOTAL</b>	<b>256.65</b>

The various natural gas process burners at the installation are considered direct heating sources, and therefore were not included in the calculation of total heat input.

The following table demonstrates compliance with the emission limit:

$$\text{Emission Rate (lb/MMBtu)} = \left[ \frac{\text{MHDR} \times \text{Emission Factor}}{\text{Heat Capacity}} \right]$$

Emission Unit #	Heat Capacity	Fuel Type	Maximum Hourly Design Rate <sup>2</sup>	PM Emission Factor	Emission Factor Reference	Potential Emission Rate	Emission Rate Limit
EU0010	77.90 (MMBtu/hr)	Natural Gas	0.074 10 <sup>6</sup> ft <sup>3</sup> /hr	7.6 lb/10 <sup>6</sup> ft <sup>3</sup>	AP-42 Table 1.4-2	0.072 (lb/MMBtu)	0.20 (lb/MMBtu)
		Fuel Oil #2	0.56 10 <sup>3</sup> gal/hr	2.00 lb/10 <sup>3</sup> gal	AP-42 Table 1.3-6	0.014 (lb/MMBtu)	

<sup>2</sup> Heat capacity divided by heating value of fuel; 1050 MMBtu/10<sup>6</sup>ft<sup>3</sup> for natural gas, 140 MMBtu/1000gal for fuel oil (AP-42, Appendix A)











Attachment G

**Construction Permit No. 122002-002 - Methanol Compliance Worksheet**

This form is an example of a form which may be used to record the data required by this permit (Permit Condition EU0140-001 through EU0170-001). In order for BioKyowa to demonstrate that it is in compliance with Permit No. 122002-002 methanol emission limit, it must demonstrate that the methanol emissions will be less than 10.0 tons in any consecutive 12-month period.

This sheet covers the period from \_\_\_\_\_ to \_\_\_\_\_  
 (month, year) (month, year)

**Copy this sheet as needed**

Column A	Column B	Column C	Column D	Column E	Column F
Process	Amount of Material Produced <sup>1</sup> (tons)	Methanol Emission Factor	Emission Factor Units	Control Efficiency <sup>2</sup> (%)	Controlled Process Methanol Emissions <sup>3</sup> (tons)
Plant 2 Methanol Process (EU0140)					
Methanol Storage Tanks (EU0150 & 0160)					
Methanol Wastewater Treatment (EU0170)					
Total Methanol Emissions for the Month <sup>4</sup>					
12-Month Methanol Emissions Total From Previous Months Worksheet <sup>5</sup>					
Monthly Methanol Emission Total From Previous Years Worksheet <sup>6</sup>					
Current 12-Month Total Methanol Emissions <sup>7</sup>					

Note:

- Amount of material produced which used methanol during the production.
- Not all of the equipment contains control devices, the control efficiency reported in this column should be from an observed stack test or engineering calculations.

3. Column F = 
$$\frac{\text{Column B} \times \text{Column C} \times \left(1 - \frac{\text{Column E}}{100}\right)}{2000}$$

- Sum of methanol emissions for the month.
- Running 12-month total of methanol emissions from previous month's worksheet.
- Methanol emissions reported for this month in the last calendar year.
- Amount reported for Note 5 minus amount reported for Note 6 plus amount reported for Note 4, not to exceed 10.0 tons for any consecutive 12-month period.

## 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 Renewal Application, received May 4, 2004;
- 2) 2004 Emissions Inventory Questionnaire, received March 31, 2005;
- 3) U.S. EPA document AP-42, *Compilation of Air Pollutant Emission Factors*; Volume I, Stationary Point and Area Sources, Fifth Edition.

The BioKyowa Incorporated – Main Production Facility (BioKyowa) was issued its initial Part 70 Operating Permit on November 3, 2000 (Permit Number: OP2000-111). When the initial Part 70 Permit was issued, BioKyowa had three main production lines. These were the lysine line, which was originally permitted in 1983 (Construction Permit Numbers: 0983-006 through 0983-009), the CG-7 line and the FNA line, which were permitted in 1999 (Construction Permit Number: 1099-021). Since the issuance of the construction permit for the CG-7 and FNA Plant expansion, and the issuance of the initial Part 70 Permit, BioKyowa has undergone a few changes at the facility which are summarized below.

1. BFK Project (Construction Permit Number: 122002-002, Operations Commenced in May 2003)
  - a) Permanent shutdown of Lysine and FNA production and substitute production of arginine, glutamine and other amino acids in what was called the BFK line. Lysine production tanks A, B, and C (EP-12) shutdown permanently. Permanent shutdown of HCl Storage Tank (EP-04), Product Drying, Sifting, Grinding and Packaging (EP-05) and Product Drying Process 22 (EP-06).
  - b) Elimination of xylene emissions from xylene storage tank T-2132, from xylene recovery system RS-2230 and from recovered xylene tank T-2133 (EP-20, 21 and 22) by rendering the storage tanks idle. Xylene is no longer required due to permanent shut down of FNA production. These storage tanks will remain on site since they may be used as process tanks later.
  - c) Addition of vent scrubber (SCS-2370) for odor control from the rich-cut tank, the tail-cut tank and resin columns 2330A-B, 2340A-B and 2350A-B.
  - d) Modification of the vent filter system VFS-2570 that controls emissions (EP-24) from the bagging area (Plant 2 Product Loading) to improve its explosion protection.
  - e) Replacement of the filter press used in the auxiliary filter process unit and addition of an evaporator between the existing rich-cut tank and decolorizing process units.
  - f) Initiation of carbon black usage in the decolorizing system. A new emission point EP-36 has been created.
  - g) HCl-day tank has been permitted as part of the BFK project. It was previously not included in the FNA construction permit (Construction Permit No. 1099-021). A new emission point EP-37 has been created.
  - h) Addition of new pneumatic transfer lines to the dry crystal conveyor system between the dryer/cooler system and storage tank T-2506. Replacement of the existing dynamic air dust filter with another explosion resistant bag filter to control particulate matter emissions from tanks T-2561 and T-2562. A new emission point EP-38 has been created.
2. Performance tests were conducted on methanol control devices associated with the methanol processes (Initial Part 70 Permit EU0140 through EU0160) and the process boiler (Initial Part 70 Permit EU0130) as required by the initial Part 70 Permit.

3. Production of threonine and tryptophan in the CG-7 process line augmented with the production of valine and isoleucine (via January 2002 no permit required letter to MDNR).
4. Relocation of Emission Point 26: CG-7 Dryer Vent - BioKyowa has relocated the fabric filter (item number F-552) which was located inside the building to outside the building.
5. Emission Point 29: CG-7 Dry Crystal Conveyor Vent – BioKyowa has installed a new fabric filter in place of the existing fabric filter (F-562).
6. Emission Point 27: CG-7 packing and Loading Vent – Like for like bagging system replacement. This emission point previously vented emissions from the CG-7 product hopper and the automated bagging system to a single fabric filter (F-571). As part of the like for like replacement of the automated bagging system, BioKyowa added a new control device (fabric filter) F-571B to control particulate emissions from the automated bagging system. With the addition of this control device, the existing fabric filter was assigned the item number F-571. Fabric filter F571-A now controls emissions from the product hopper alone. Consequently, EP-27 was split into EP-27A and 27B, respectively.
7. Permanent shutdown of loading area emission points EP-15 and 16 due to the shutting down of the lysine plant.
8. Permanent shutdown of the trickling filter scrubber exhaust (EP-13) due to the shutting down of the lysine plant.
9. Tanks T301A, T301B, T308A, T308B and T410 in the CG-7 process line have been taken offline and permanently shutdown. Tank 304B has been relocated as a process tank in the BFK process line. SC-304A scrubber previously controlled trace amounts of ammonia from the rich cut tanks and the spent slurry neutralization tanks (T301A through T301F), and SC-304B scrubber controlled trace amounts of sulfuric acid fumes from the broth tanks (T-304A-B, T308A-B, T410 and T610). As a result of the shutting down of the above tanks and the resulting decrease in gaseous emissions inflow to the scrubber, SC-304A now controls the combined inflow of trace amounts of ammonia and sulfuric acid fumes from the remaining tanks (T301C through F, T304A and T610). SC-304B has been taken offline and removed from service since it was no longer required.
10. Addition of new decolorizing scrubber SCS-351 in the CG-7 Process line. SCS-351 independently controls PM<sub>10</sub> emissions and odor from the decolorizing area instead of SCS-370, which was originally proposed to control odor emissions. A new emission point EP-39 has been created
11. Sodium metabisulfite (Na<sub>2</sub>S<sub>2</sub>O<sub>5</sub>) powder is being used in the CG-7 process line. BioKyowa added a scrubber (SC-371) to control trace particulate emissions from filtration process unit T361. Trace amounts of fugitive sulfur dioxide emissions could also occur during the addition of Na<sub>2</sub>S<sub>2</sub>O<sub>5</sub>. A new emission point EP-40 has been created.
12. Addition of a small package boiler (1.05 MMBtu/hr) to provide steam to the wastewater treatment plant. A new emission point EP-41 has been created.

### **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.

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

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

EU0020 - Utility Plant Process Boiler B (77.7 MMBtu/hr)

BioKyowa indicated in the renewal application that this boiler is not subject to NSPS Dc. Since the boiler was constructed after June 9, 1989 (NSPS Dc applicability date) and the maximum design heat input capacity is greater than 10 million Btu/hr but less than 100 million Btu per hour, this Boiler is subject to Subpart Dc. Therefore BioKyowa will be required to comply with the requirements of Subpart Dc.

**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.

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

10 CSR 10-6.220, *Restriction of Visible Air Contaminants*

10 CSR 10-3.060, *Maximum allowable Emissions of Particulate Matter From Fuel burning Equipment Used for Indirect Heating*

These rules do not apply to the Utility Plant Process Boilers B and C (EU0020 and EU0130). These boilers are subject to 40 CFR part 60, subpart Dc (NSPS). Per 10 CSR 10-6.260(1)(A)1., 10 CSR 10-6.220(1)(E) and 10 CSR 10-3.060(3)(E), these rules do not apply to sources subject to the provisions of NSPS. However, indirect heat input values from these sources are used in the calculation of the installation's total heat input (Q) to determine the maximum allowable particulate matter from fuel burning equipment used for indirect heating.

**Construction Permit Revisions**

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

1) Construction Permit Number 122002-002

Special Condition 2.A states the following:

“BioKyowa, Inc. shall emit less than 10.0 tons of methanol (CAS Number 67-56-1) from the methanol process (EP-18), the methanol storage tanks (EP-19) and from the methanol wastewater treatment process (EP-28) in any consecutive 12-month period.”

Special Condition 2.B states the following:

“Attachment A *Methanol Compliance Worksheet* or equivalent forms approved by the APCP shall be used to demonstrate compliance with Special Condition 2.A. BioKyowa shall maintain all records required by this permit for not less than five (5) years and shall make them available immediately to any Missouri Department of Natural Resources' personnel upon request.”

Special Condition 4.A states the following:

“BioKyowa, Inc. shall control emissions from the Methanol Process (EP-18) using a catalytic oxidizer at all times the Methanol Process is in operation. The catalytic oxidizer shall be operated and maintained in accordance with the manufacturer's specifications.”

Special Condition 4.B states the following:

“BioKyowa, Inc. shall control emissions from the methanol storage tanks (EP-19), the hydrogen chloride (HCl) storage tanks (EP-23) and HCl day tank (EP-37) using a packed tower with mist eliminator. The packed scrubber with mist eliminator shall be operated and maintained in

accordance with the manufacturer's specifications.”

The installation took a limit on the methanol emissions to be below the major source threshold on HAPs for a Section (5) Review instead of a Section (9) Review.

The emission units that emit methanol have control devices present. There are no construction permit conditions which state what the efficiency of the control devices must be to meet the less than ten-ton emission limit. There is no performance testing of the permit condition to demonstrate that the control device can meet the claimed control efficiency. And there are no periodic monitoring parameters of the control device to demonstrate that the control device is operating properly and meeting the claimed control efficiency.

To use the controlled potential in the potential emissions for HAPs, federally enforceable conditions must be present to ensure the proper control efficiencies. In the operating permit, additional requirements were added for the catalytic oxidation units and packed tower with mist eliminator. The additional requirements consisted of performance testing and periodic monitoring of the control devices. This is in accordance with 10 CSR 10-6.065(6)(C)1.C.(I)(b) of the Operating Permits regulation, that your operating permit includes additional monitoring sufficient to yield a reasonable assurance of compliance with the construction permit conditions.

### **NSPS Applicability**

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

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

Utility Plant Process Boiler B (EU0020) and Utility Plant Process Boiler C (EU0130) are subject to the requirements of this standard. These emission units have the ability to use natural gas and #2 distillate oil.

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

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, and Prior to May 19, 1978*

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*

The following storage tanks are below the level of reporting significance (Subpart K – 40,000 Gallons, Subpart Ka – 40,000 Gallons and Subpart Kb – 19,812.9 Gallons or do not contain regulated solvents and therefore are not subject to 40 CFR Part 60 Subpart K, Ka or Kb):

Description	Capacity	Date Placed in Service
T2441 – Plant 2 Methanol Storage Tank	16,000 gallons	09/2000
T2442 – Plant 2 Methanol Storage Tank	16,000 gallons	09/2000

Description	Capacity	Date Placed in Service
T101 - Wastewater Utility Tank	528,00 gallons	03/1984
T102 - Raw Material Storage Tank	5,300 gallons	03/1984
T105 - Sulfuric Acid Storage Tank	21,000 gallons	03/1984
T106 - Plant 1/Utility Plant Hydrochloric Acid Storage Tank	26,000 gallons	03/1984
T107 - Nitric Acid Storage Tank	4,000 gallons	03/1984
T108A - Anhydrous Ammonia Storage Tank	26,000 gallons	03/1984
T108B - Anhydrous Ammonia Storage Tank	26,000 gallons	03/1984
T109 - Caustic Storage Tank	4,000 gallons	03/1984
T111 - Defoamer Oil Storage Tank	2,600 gallons	03/1984
T201A - Molasses Dilution Tank	13,000 gallons	03/1984
T201B - Molasses Dilution Tank	13,000 gallons	03/1984
T201D - Glucose Tank	800 gallons	09/2000
T202C - Makeup Tank	5,300 gallons	09/2000
T202D - Gallon Makeup Tank	5,300 gallons	09/2000
T204D - Feeding Tank	38,000 gallons	03/1984
T204E - Feeding Tank	38,000 gallons	03/1984
T204F - Feeding Tank	38,000 gallons	03/1984
T207 - Defoamer Storage Tank	450 gallons	03/1984
T208B - Nitric Acid Dilution Tank	3,950 gallons	09/2000
T209B - Caustic Soda Dilution Tank	3,950 gallons	09/2000
T210C - First Seed Tank	800 gallons	09/2000
T210D - First Seed Tank	800 gallons	09/2000
T212B - Caustic Measuring Tank	30 gallons	06/1986
T220C - Second Seed Tank	5,300 gallons	09/2000
T220D - Second Seed Tank	5,300 gallons	09/2000
T230D - Plant 1 Main Fermentor (EP-33)	81,000 gallons	03/1984
T230E - Plant 1 Main Fermentor (EP-34)	81,000 gallons	03/1984
T230F - Plant 1 Main Fermentor (EP-35)	81,000 gallons	09/2000
T231D - Cushion Tank	2,700 gallons	03/1984
T231E - Cushion Tank	2,700 gallons	03/1984
T231F - Cushion Tank	2,700 gallons	10/1990
T233C - Pressure Holding Tank	500 gallons	09/2000
T233D - Pressure Holding Tank	500 gallons	09/2000
T234 - Ammonia Scrubbing Tank	53 gallons	09/2000
T240C - Medium Cushion Tank	1,200 gallons	09/2000
T240D - Gallon Medium Cushion Tank	1,200 gallons	09/2000
T260A - Hot Water Tank	26,000 gallons	05/1999
T260B - Hot Water Tank	26,000 gallons	08/1999
T279B - Drain Tank	2,100 gallons	03/1984
T280 - Defoamer Tank	53 gallons	09/2000
T281 - Hot Water Tank	2,650 gallons	09/2000
T302 - Sulfuric Acid Head Tank	2,600 gallons	03/1984
T302A - Sulfuric Acid Head Tank	2,600 gallons	09/2000
T302B - Sulfuric Acid Head Tank	1,300 gallons	09/2000
T310A - Resin Charging Tank	500 gallons	03/1984
T310B - Redissolving Tank	500 gallons	03/1984
T353 - Precoat Tank	2,650 gallons	09/2000
T354 - Filter Aid Tank	450 ft <sup>3</sup>	09/2000
T356A - Filter Aid Tank	700 ft <sup>3</sup>	09/2000

Description	Capacity	Date Placed in Service
T356B – Filter Aid Tank	700 ft <sup>3</sup>	09/2000
T361 – Filtrate Tank	16,000 gallons	09/2000
T411B – Neutralization Tank	16,000 gallons	09/2000
T413A – Vacuum Pan Tank	5,700 gallons	09/2000
T413B – Vacuum Pan Tank	5,700 gallons	03/1984
T413C – Vacuum Pan	5,700 gallons	03/1984
T413D – Vacuum Pan	5,700 gallons	03/1984
T413E – Vacuum Pan	5,700 gallons	03/1984
T414E – Crystalizer	5,000 gallons	10/1990
T415C – ML Tank	6,000 gallons	03/1984
T415D – Wash-Liquor Tank	6,000 gallons	10/1990
T416B – Centrifuge Feed Tank	2,650 gallons	09/2000
T416C – Centrifuge Feed Tank	2,650 gallons	09/2000
T420 – Caustic Soda Day Tank	1,320 gallons	09/2000
T506B – Product Hopper	1165 ft <sup>3</sup>	09/2000
T506C – Product Hopper	1165 ft <sup>3</sup>	09/2000
T610 – pH adjustment w/Anhydrous Ammonia Tank	2,600 gallons	03/1984
T611 – Evaporator Condensate Tank	1,500 gallons	03/1984
T612 – C.I.P. Work Tank	500 gallons	03/1984
T613 – Acid Wash (Dilute Nitric) Tank	500 gallons	03/1984
T615 – Caustic Wash (Caustic Soda) Tank	500 gallons	03/1984
T617 – Wastewater Utility Tank	160,000 gallons	03/1984
T650 – Pre-Evaporation Feed Balance Tank	1,000 gallons	09/2000
T658 – Forced Circulation Evaporation Feed Balance Tank	1,500 gallons	09/2000
T663 – Condensate Receiver	1,000 gallons	09/2000
T664 – Service Water Tank	3,000 gallons	09/2000
T665 – Acid Reclaim Tank	3,000 gallons	09/2000
T666 – Caustic Reclaim Tank	3,000 gallons	09/2000
T667 – CIP Recovered Water Tank	2,500 gallons	09/2000
T810 – Caustic Storage Tank	7,800 gallons	03/1984
T828A – Polymer Storage Tank	3,000 gallons	03/1984
T828B – Polymer Storage Tank	1,500 gallons	03/1984
T829 – Polymer Measuring Tank	90 gallons	11/1991
T830A – Polymer Mixing Tank	1,400 gallons	11/1991
T830B – Polymer Mixing Tank	1,400 gallons	11/1991
T839A – Ferric Sulfate Storage Tank	2,500 gallons	11/1991
T839B – Ferric Sulfate Storage Tank	2,500 gallons	11/1991
T840A – Sludge Storage Tank	75,000 gallons	03/1984
T878 – Caustic Soda Storage Tank	500 gallons	11/1991
T879 – Bleach Storage Tank	4,400 gallons	10/1996
T886 – Well Water Storage North Site	4,000 gallons	03/1994
T897A – Caustic Soda Storage Tank	7,200 gallons	03/1984
T897B – Caustic Soda Storage Tank	7,200 gallons	03/1984
T904 – Plant Air Receiver (Dried Air) Tank	33 Ft <sup>3</sup>	03/1984
T905A – Plant Air Receiver (Wet Air) Tank	33 Ft <sup>3</sup>	03/1984
T905B – Plant Air Receiver (Wet Air) Tank	33 Ft <sup>3</sup>	10/1993
T906 – Instrument Air Receiver Tank	300 Ft <sup>3</sup>	03/1984
T910A – Caustic Day Tank (Powerhouse)	250 gallons	03/1984
T910B – Caustic Day Tank (Powerhouse)	250 gallons	10/1990

Description	Capacity	Date Placed in Service
T911A – Softened Water Storage Tank	18,000 gallons	03/1984
T911B – Softened Water Storage Tank	18,000 gallons	10/1990
T913A – Deionized Water Surge Tank	500 gallons	03/1984
T913B – Deionized Water Surge Tank	500 gallons	10/1990
T914 – Nitric Acid Dilution Tank	500 gallons	03/1984
T952 – Deionized Water Storage Tank	110,000 gallons	09/2000
T953 - Caustic Day Tank	690 gallons	09/2000
T1101 – Molasses Storage (Port Site) Tank	1,263,000 gallons	11/1947
T1102 – Molasses Storage (Port Site) Tank	835,000 gallons	11/1947
T1103 – Port Site By Product Storage Tank	634,000 gallons	11/1947
T1104 – Port Site By Product Storage Tank	634,000 gallons	11/1947
T1106 – Port Site Fuel Oil Storage Tank	18,600 gallons	11/1947
T1601 – North Site Diesel Storage Tank	8,800 gallons	10/1990
T2123 – NaOH Storage Tank	40,000 gallons	09/2000
T2124 – KOH Storage Tank	16,000 gallons	09/2000
T2131 – Defoamer Oil Storage Tank	8,000 gallons	09/2000
T2132 – Process Tank (EP-20) (formerly xylene storage tank)	2,650 gallons	09/2000
T2133 – Recovered Process Tank (EP-21) (formerly recovered xylene storage tank)	2,650 gallons	09/2000
T2201 –Glucose Storage Tank	26,500 gallons	09/2000
T2202 – Makeup Tank-1	8,000 gallons	09/2000
T2203 – Medium Cushion Tank	1,200 gallons	09/2000
T2204 – Feeding Tank	11,000 gallons	09/2000
T2207 – Defoamer Tank	800 gallons	09/2000
T2208 – Nitric Acid Dilution Tank	3,950 gallons	09/2000
T2209 – Caustic Soda Dilution Tank	3,950 gallons	09/2000
T2210A – First seed Tank	800 gallons	09/2000
T2210B – First seed Tank	800 gallons	09/2000
T2210C – First seed Tank	800 gallons	09/2000
T2212A – Caustic Measuring Tank	264 gallons	09/2000
T2212B – Caustic Measuring Tank	264 gallons	09/2000
T2220A – Second Seed Tank	5,300 gallons	09/2000
T2220B – Second Seed Tank	5,300 gallons	09/2000
T2230A – Plant 2 Main Fermentor (EP-30)	81,000 gallons	09/2000
T2230B – Plant 2 Main Fermentor (EP-31)	81,000 gallons	09/2000
T2230C – Plant 2 Main Fermentor (EP-32)	81,000 gallons	09/2000
T2230D – Sub-Fermentor	11,000 gallons	09/2000
T2232A – Defoamer Feed Tank	30 gallons	09/2000
T2232B –Defoamer Feed Tank	30 gallons	09/2000
T2232C – Defoamer Feed Tank	30 gallons	09/2000
T2233 – Pressure Holding Tank	530 gallons	09/2000
T2234 – NH <sub>3</sub> Scrubbing Tank	53 gallons	09/2000
T2235 – H <sub>2</sub> SO <sub>4</sub> Day Tank	360 gallons	09/2000
T2240 – Fructose Tank	11,000 gallons	09/2000
T2241 – CSL Storage Tank	11,000 gallons	09/2000
T2242 – CSL Treatment Tank	5,500 gallons	09/2000
T2243 – H <sub>2</sub> PO <sub>4</sub> Tank	5,500 gallons	09/2000
T2244 – Make-up Tank-2	5,500 gallons	09/2000
T2246 – Make-up Tank-3	1,320 gallons	09/2000



Description	Capacity	Date Placed in Service
T2250 – Detergent Tank	1,320 gallons	09/2000
T2260 – Hot Water Tank	26,500 gallons	09/2000
T2270 – Foam Receiving Tank	1,320 gallons	09/2000
T2279 – Drain Tank	1,320 gallons	09/2000
T2280 – Defoamer Tank	53 gallons	09/2000
T2301A – Broth Tank	80,000 gallons	09/2000
T2301B – Broth Tank	80,000 gallons	09/2000
T2310A – Decanter Cushion Tank	530 gallons	09/2000
T2310B – Waste Cake Hopper	800 gallons	09/2000
T2311 – Resin Column Feed Tank	21,000 gallons	09/2000
T2321 – Resin Column	1,320 gallons	09/2000
T2322B – Tail Cut Tank (formerly T304B in the lysine plant)	32,000 gallons	03/1984
T2323 – Rich Cut Tank	40,000 gallons	09/2000
T2351 – Wastewater Tank	5,500 gallons	09/2000
T2360 – Decolorizing Tank	16,000 gallons	09/2000
T2361 – Pre-coat Tank	360 gallons	09/2000
T2362 – Gallon Filtrate Tank	16,000 gallons	09/2000
T2363 – Waste Cake Hopper	280 ft <sup>3</sup>	09/2000
T2364 – Wash Water Tank	250 gallons	09/2000
T2372 – Reverse Filtration Tank	360 gallons	09/2000
T2373 – Filtrate Tank 2	5,200 gallons	09/2000
T2392 – CIP Work Tank	450 gallons	09/2000
T2393 – Acid Wash Tank	450 gallons	09/2000
T2394 – Caustic Wash Tank	450 gallons	09/2000
T2413A – Vacuum Pan	5,700 gallons	09/2000
T2413B – Vacuum Pan	5,700 gallons	09/2000
T2413C – Vacuum Pan	5,700 gallons	09/2000
T2413D – Vacuum Pan	5,700 gallons	09/2000
T2414A – Crystalizer	5,500 gallons	09/2000
T2414B – Crystalizer	5,500 gallons	09/2000
T2415 – ML Tank	1,320 gallons	09/2000
T2420 – Crystalizer Hot Water Tank	800 gallons	09/2000
T2413A –Wet Crystal Collector	70 ft <sup>3</sup>	09/2000
T2413B – 70 ft <sup>3</sup> Wet Crystal Collector	70 ft <sup>3</sup>	09/2000
T2413C – 70 ft <sup>3</sup> Wet Crystal Collector	70 ft <sup>3</sup>	09/2000
T2506 – 1000 ft <sup>3</sup> Product Hopper	1000 ft <sup>3</sup>	09/2000
T2507 – 470 ft <sup>3</sup> Product Service Hopper	470 ft <sup>3</sup>	09/2000
RC2320A – 31,700 Gallon Resin Column-1	31,700 gallons	09/2000
RC2320B – 31,700 Gallon Resin Column-1	31,700 gallons	09/2000
RC2320C – 31,700 Gallon Resin Column-1	31,700 gallons	09/2000
RC2330A – 40,000 Gallon Resin Column-2	40,000 gallons	09/2000
RC2330B – 40,000 Gallon Resin Column-2	40,000 gallons	09/2000
RC2340A – 9,500 Gallon Resin Column-3	9,500 gallons	09/2000
RC2340B – 9,500 Gallon Resin Column-3	9,500 gallons	09/2000
RC2350A – 9,500 Gallon Resin Column-4	9,500 gallons	09/2000
RC2350B – 9,500 Gallon Resin Column-4	9,500 gallons	09/2000
T2510 – 360 Gallon Dryer Hot Water Tank	360 gallons	09/2000
T2561 – Cooled Product Receiver	50 ft <sup>3</sup>	09/2000
T2562 – Dry Crystal Collector	82 ft <sup>3</sup>	09/2000

The following storage tank is not subject to the requirements of Subpart Ka – 40,000 Gallons since the material being stored (No. 2 Fuel Oil) does not meet the definition of petroleum liquids according to 40 CFR Part 60, Subpart Ka.

Description	Capacity	Date Placed in Service
T903 – No. 2 Fuel Oil Storage Tank	61,000 gallons	03/1984

The following storage tanks are not subject to the requirements of Subpart Kb – 19,812.9 Gallons since the material being stored does not meet the definition of volatile organic liquids according to 40 CFR Part 60, Subpart Kb.

Description	Capacity	Date Placed in Service
T301C – DI Water Storage Tank	72,000 gallons	10/1985
T301D – Fermentation Broth Tank	72,000 gallons	10/1990
T301E – Broth Tank	80,000 gallons	Post 07/23/1984
T301F – Broth Tank	80,000 gallons	Post 07/23/1984
T351A – Decolorizing Tank	31,700 gallons	Post 07/23/1984
T351B – Decolorizing Tank	31,700 gallons	Post 07/23/1984
T838 – Liquid Sludge Blending Tank	36,800 gallons	05/1999
T840B – Sludge Storage Tank	125,000 gallons	10/1990
T1105 – Port Site By Product Storage Tank	1,250,000 gallons	10/1990
T2322B – Tail Cut Tank (formerly T304B in the lysine plant)	32,000 gallons	10/1990

**MACT Applicability**

The potential emissions of hazardous air pollutants (HAPs) from the BioKyowa installation are less than 10 tons per year of individual HAPs and 25 tons per year of combined HAPs (as stated in Table 1: Emission Summary in Construction Permit 122002-002). Therefore, BioKyowa is not a major source of HAP emissions and none of the MACT standards under 40 CFR Part 63 will apply.

As part of the Plant 2 modification (BFK Construction Permit No. 122002-002), BioKyowa completely eliminated the emissions of xylene. The only HAPs that are emitted are methanol, HCl and small quantities of other HAPs resulting from fuel combustion in the boilers. The only existing plant wide emission limit is for limiting methanol emissions to less than 10 tons per year. All HCl emissions are regulated by federally enforceable permit conditions (Permit Condition EU0030-001, EU0080-001 through EU0090-001 and Construction Permits 122002-002 Special Condition 4B and 1099 Special Condition 6) which require BioKyowa to use and operate scrubbers to control HCl.

**NESHAP Applicability**

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

**CAM Applicability**

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

The CAM rule applies to each pollutant specific emission unit that meets all of the following:

- Be subject to an emission limitation or standard, and
- Use a control device to achieve compliance, and
- Have pre-control emissions that exceed or are equivalent to the major source threshold.

None of the emission units at the installation are subject to 40 CFR Part 64 because the uncontrolled potential emissions are below the major source thresholds for all emission units that have control devices.

**Other Regulatory Determinations**

10 CSR 10-6.400, *Restriction of Emission of Particulate Matter From Industrial Process*

Calculation of the PM limits and emission rates of emission units subject to 10 CSR 10-6.400. Process information and data used in these calculations are from the Part 70 Operating Permit Renewal Application, received May 4, 2004 and AP-42 and FIRE factors.

Also, the following formula from 10 CSR 10-6.400 is used to calculate the PM allowable limit:

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

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	PM Controlled Emissions	PM Allowable Emission Rate
EU0040	Fabric Filter 99%	2.2 tons/hr	5.5 lbs/ton	12.10 lbs/hr	0.12 lbs/hr	6.95 lbs/hr
EU0050	Fabric Filter 99%	0.84 tons/hr	0.48 lbs/ton	0.40 lbs/hr	0.004 lbs/hr	3.65 lbs/hr
EU0060	Fabric Filter 99%	0.975 tons/hr	5.5 lbs/ton	5.36 lbs/hr	0.05 lbs/hr	4.03 lbs/hr
EU0070	Fabric Filter 99%	0.975 tons/hr	5.5 lbs/ton	5.36 lbs/hr	0.05 lbs/hr	4.03 lbs/hr
EU0100	Scrubber 97%	0.03125 tons/hr	58 lbs/ton	1.81 lbs/hr	0.05 lbs/hr	0.43 lbs/hr
EU0110	Fabric Filter 99%	1.102 tons/hr 0.15x10 <sup>6</sup> ft <sup>3</sup> /hr air flow	125 lbs/10 <sup>6</sup> ft <sup>3</sup> air flow	18.75 lbs/hr	0.19 lbs/hr	4.37 lbs/hr
EU0120	Fabric Filter 99%	2.2 tons/hr	5.5 lbs/ton	12.10 lbs/hr	0.12 lbs/hr	6.95 lbs/hr

EU0040 – Plant 1 Filter Aid Vent (EP-01)

At the maximum hourly design rate (2.2 tons/hr), the uncontrolled emission rate (12.10 lbs/hr) is approximately one and seven tenth (1.7) times greater than the allowable emission rate (6.95 lbs/hr). The process is equipped with a fabric filter (99% control efficiency); the controlled emission rate (0.12 lbs/hr) is approximately fifty-eight (58) times less than the allowable emission rate. It is highly unlikely that the allowable emission rate will be exceeded with the control device operating.

Monitoring and record keeping will be required to ensure that the control device is operating properly.

EU0050 – Plant 1 Dryer (EP-26)

At the maximum hourly design rate (0.84 tons/hr), the uncontrolled emission rate (0.40 lb/hr) is less than the allowed exemption level of 10 CSR 10-6.400(1)(B)11. (i.e., 0.5 lbs/hr), therefore this unit is not subject to the provisions of this rule.

EU0060 – Plant 1 Hopper and Bagging (EP-27)

At the maximum hourly design rate (0.975 tons/hr), the uncontrolled emission rate (5.36 lbs/hr) is approximately one and three tenth (1.3) times greater than the allowable emission rate (4.03 lbs/hr). The process is equipped with a fabric filter (99% control efficiency); the controlled emission rate (0.05 lbs/hr) is approximately eighty-one (81) times less than the allowable emission rate. It is highly unlikely that the allowable emission rate will be exceeded with the control device operating. Monitoring and record keeping will be required to ensure that the control device is operating properly.

EU0070 – Plant 1 Dry Crystal Conveyor (EP-29)

At the maximum hourly design rate (0.975 tons/hr), the uncontrolled emission rate (5.36 lbs/hr) is approximately one and three tenth (1.3) times greater than the allowable emission rate (4.03 lbs/hr). The process is equipped with a fabric filter (99% control efficiency), the controlled emission rate (0.05 lbs/hr) is approximately eighty-one (81) times less than the allowable emission rate. It is highly unlikely that the allowable emission rate will be exceeded with the control device operating. Monitoring and record keeping will be required to ensure that the control device is operating properly.

EU0100 – Plant 2 Decolorizing Process (EP-36)

At the maximum hourly design rate (0.03125 tons/hr), the uncontrolled emission rate (1.81 lbs/hr) is approximately four and two tenth (4.2) times greater than the allowable emission rate (0.43 lbs/hr). The process is equipped with a scrubber (97% control efficiency); the controlled emission rate (0.05 lbs/hr) is approximately eight and six tenth (8.6) times less than the allowable emission rate. It is highly unlikely that the allowable emission rate will be exceeded with the control device operating. Monitoring and record keeping will be required to ensure that the control device is operating properly.

EU0110 – Plant 2 Product Loading (EP-24)

At the maximum hourly design rate ( $0.15 \times 10^6$  ft<sup>3</sup>/hr and 1.102 tons/hr), the uncontrolled emission rate (18.75 lbs/hr) is approximately four and three tenth (4.3) times greater than the allowable emission rate (4.37 lbs/hr). The process is equipped with a fabric filter (99% control efficiency); the controlled emission rate (0.19 lbs/hr) is approximately twenty-three (23) times less than the allowable emission rate. It is highly unlikely that the allowable emission rate will be exceeded with the control device operating. Monitoring and record keeping will be required to ensure that the control device is operating properly.

EU0120 – Plant 2 Product Loading (EP-24)

At the maximum hourly design rate (2.2 tons/hr), the uncontrolled emission rate (12.10 lbs/hr) is approximately one and seven tenth (1.7) times greater than the allowable emission rate (6.95 lbs/hr).

The process is equipped with a fabric filter (99% control efficiency), the controlled emission rate (0.12 lbs/hr) is approximately fifty-eight (58) times less than the allowable emission rate. It is highly unlikely that the allowable emission rate will be exceeded with the control device operating. Monitoring and record keeping will be required to ensure that the control device is operating properly.

10 CSR 10-3.060, *Maximum Allowable Emissions of Particulate Matter From Fuel Burning Equipment Used for Indirect Heating*

This regulation requires that the heat input from all indirect heating sources be included in determining the allowable particulate emission amount. The three natural gas/fuel oil #2 fired boilers (EU0010, EU0020, and EU0130) are rated at 77.90, 77.70 and 100 million Btu per hour, respectively. The WWTP package boiler is 1.05 million Btu per hour heat input, respectively. The installation's combined heat input rate of 256.65 million Btu per hour was used to determine the allowable particulate emission for the indirect heating sources. This was determined to be 0.20 pounds per million Btu of heat input for the Process Boiler A (EU0010). Since Process Boiler B (EU0020) and C (EU0130) are subject to NSPS Subpart Dc, the boilers are exempt from the requirements of this rule.

The emission rate for the process is calculated as follows:

$$E = 1.31(Q)^{-0.338}$$

$$E = 1.31(256.65)^{-0.338} = 0.20 \frac{\text{lb}}{\text{MMBTU}}$$

EU0010 – Utility Plant Process Boiler A (EP-01)

The emission rates for EU0010 based on the boiler heat input, fuel heat content and AP-42, Section 1.4, Table 1.3-1 (July 1998) emission factor is as follows:

Heat Input = 77.90 MMBtu/hr

Heat Content = 140,000 Btu/gal

Emission Factor = 2 lb/1000 gallon

$$\text{Maximum Hourly Design Rate} = \left( 77.90 \frac{\text{MMBtu}}{\text{hr}} \right) \div \left( \frac{140 \text{ MMBtu}}{1,000 \text{ gal}} \right) = 0.556 \times 10^3 \frac{\text{gal}}{\text{hr}}$$

$$\text{PM}_{\text{Emission}} (\text{lbs/MMBtu}) = \frac{\left( \frac{2 \text{ lbs}}{10^3 \text{ gal}} \right) \times \left( 0.556 \times 10^3 \frac{\text{gal}}{\text{hr}} \right)}{77.9 \frac{\text{MMBtu}}{\text{hr}}} = 0.014 \frac{\text{lbs}}{\text{MMBtu}}$$

At the maximum hourly design rate, the emission rate based on the AP 42 factor is approximately fourteen (14) times less than the Allowable emission rate. It is highly unlikely that the allowable emission rate will be exceeded, therefore there are no record keeping or monitoring requirements.

1.05 MMBtu/hr Natural Gas Fired Package Boiler

Though the WWTP package boiler is subject to the requirements of this rule, the APCP does not consider this unit to be capable of exceeding the particulate matter emission limitation (0.20 lbs/MMBtu). Conservatively assuming 1050 Btu per standard cubic foot of natural gas and using the PM emission factor for natural gas combustion of 7.6 pounds per million standard cubic feet (AP-42, Section 1.4, Table 1.4-2, July 1998); the potential emission is 0.0076 lbs/MMBtu. Therefore the WWTP package boiler is not included in this operating permit.

**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 APCP'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 APCP a schedule for achieving compliance for that regulation(s).

Prepared by:

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