

# DEPARTMENT OF ENVIRONMENTAL CONSERVATION

## AIR QUALITY CONTROL CONSTRUCTION PERMIT

Permit AQ0083CPT06

Final – January 6, 2015

The Alaska Department of Environmental Conservation (Department), under the authority of AS 46.14 and 18 AAC 50, issues Air Quality Control Construction Permit AQ0083CPT06 to the Permittee listed below.

**Operator and Permittee:** Agrium, U.S. Inc.  
P.O. Box 575  
Kenai, Alaska 99611

**Owner:** Agrium U.S. Inc.

**Stationary Source:** Kenai Nitrogen Operations

**Location:** Latitude: 60° 48' 28" North; Longitude: 151° 22' 45" West

**Physical Address:** Mile 21 Kenai Spur Highway  
Kenai, Alaska 99611

**Permit Contact:** Ted Hartman (913) 302-7469  
[ted.hartman@agrium.com](mailto:ted.hartman@agrium.com)

**Project:** Establish Kenai Nitrogen Operations Facility

The project is classified under 18 AAC 50.306 as a Prevention of Significant Deterioration (PSD) major stationary source for oxides of nitrogen (NO<sub>x</sub>), carbon monoxide (CO), total particulate matter (PM), particulate matter with an aerodynamic diameter not exceeding 10 microns (PM-10), particulate matter with an aerodynamic diameter not exceeding 2.5 microns (PM-2.5), volatile organic compounds (VOCs), and greenhouse gases (GHGs). As required by AS 46.14.120(c) the Permittee shall comply with the terms and conditions of this permit.

*F. Z. Kuterbach*

for John F. Kuterbach, Manager  
Air Permits Program

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## Section 1 Emission Unit Inventory

- Emission Units (EU) Authorization.** The Permittee is authorized to install and operate the EUs listed in Table 1. Except as noted elsewhere in the permit the information in Table 1 is for informational purposes only. The specific EU descriptions do not restrict the Permittee from replacing and EU identified in Table 1. The Permittee shall comply with all applicable provisions of AS 46.14 and 18 AAC 50 when installing a replacement EU, including any applicable minor or construction permit requirement.

**Table 1 – Stationary Source Emission Units**

	EU ID	Tag Number	Source Description	Fuel Type	Rating/size	Install Date
Ammonia Plant #4	11	B-609	Ammonia Tank System Flare		1.25 MMBtu/hr	1995
	12	B-201	Primary Reformer	Fuel Gas & NG	1350 MMBtu/hr	1976
	13	B-200	Startup Heater	NG	101 MMBtu/hr	1976
	14	D-207	CO <sub>2</sub> Vent	N/A	90 tons/hr (NH <sub>3</sub> )	1976
	15	H-205	Organic Sulfur Removal Unit Vent	N/A	N/A	1976
	16	H-269	Amine Fat Flasher Vent	N/A	N/A	1976
	17	F-263	PC Stripper Surge Tank Vent	N/A	N/A	1976
	19	C-200	H <sub>2</sub> Vent Stack (dry gas vent)	N/A	N/A	1976
	20	H-260	PC Stripper Steam KO Drum	N/A	N/A	1976
	21	F-287	Ammonia Drain Tank Vent	N/A	N/A	1976
	22	B-502	Plants 4 and 5 Small Flare Pilot	NG& NH <sub>3</sub>	1.25 MMBtu/hr	1995
	Plants 4 and 5 Small Flare Flaring Event		1,200 lb/hr NH <sub>3</sub>			
23	B-501	Plants 4 and 5 Emergency Flare Pilot	NG& NH <sub>3</sub>	0.4 MMBtu/hr	1995	
		Plants 4 and 5 Emergency Flare Flaring Event		30,000 lb/hr NH <sub>3</sub>		
Urea Plant #5	35	C-560A	Granulator A/B Scrubber Exhaust Vent Stack	N/A	50 tons/hr (urea)	1976
	36	C-560B	Granulator C/D Scrubber Exhaust Vent Stack	N/A	50 tons/hr (urea)	1976
	37	D- 515	Atmospheric Absorber Final Scrubber	N/A	N/A	1976
	38	D-511	Inerts Vent Scrubber	N/A	N/A	1976
	39	E-535	After Condenser Exchanger	N/A	N/A	1976
	40	E-711	Cooling tower	N/A	15,000 gal/min	1976
	41-41C	multiple	Tank Scrubber	N/A	N/A	multiple
Utility Plant #3 and # 6	44	B-708A	Package Boiler	NG	243 MMBtu/hr	
	47-47D	multiple	Urea and Ammonia Loading Wharf	N/A	1000 tons/hr	multiple
	48	B-708B	Package Boiler	NG	243 MMBtu/hr	
	49	B-708C	Package Boiler	NG	243 MMBtu/hr	
	50	B-705A	Waste Heat Boiler	NG	50 MMBtu/hr	1986
	51	B-705B	Waste Heat Boiler	NG	50 MMBtu/hr	1986
	52	B-705C	Waste Heat Boiler	NG	50 MMBtu/hr	1986
	53	B-705D	Waste Heat Boiler	NG	50 MMBtu/hr	1986
	54	B-705E	Waste Heat Boiler	NG	50 MMBtu/hr	1986
	55	GGT-744A	Solar Turbine/Generator Set	NG	37.6 MMBtu/hr	1976
	56	GGT-744B	Solar Turbine/Generator Set	NG	37.6 MMBtu/hr	1976
	57	GGT-744C	Solar Turbine/Generator Set	NG	37.6 MMBtu/hr	1976
	58	GGT-744D	Solar Turbine/Generator Set	NG	37.6 MMBtu/hr	1976
	59	GGT-744E	Solar Turbine/Generator Set	NG	37.6 MMBtu/hr	1976
	60	F-791	Deaerator Vent	N/A	N/A	1986
	61	F-711	Degasifier Vent	N/A	N/A	1976
65	GM-616D	Diesel Fired Well Pump	Diesel	2.7 MMBtu/hr	1966	
66		Gasoline Fired Fire Pump Engine	Gasoline	2.1 MMBtu/hr	1978	

## **Section 2            Emission Fees**

2.    **Assessable Emissions.** The Permittee shall pay to the Department annual emission fees based on the stationary source’s assessable emissions as determined by the Department under 18 AAC 50.410. The assessable emission fee rate is set out in 18 AAC 50.410. The Department will assess fees per ton of each air pollutant that the stationary source emits or has the potential to emit in quantities greater than 10 tons per year. The quantity for which fees will be assessed is the lesser of:
  - 2.1    the stationary source's assessable potential to emit of 1234 tpy; or
  - 2.2    the stationary source’s projected annual rate of emissions that will occur from July 1st to the following June 30th, based upon actual annual emissions emitted during the most recent calendar year or another 12 month period approved in writing by the Department, when demonstrated by:
    - a.    an enforceable test method described in 18 AAC 50.220;
    - b.    material balance calculations;
    - c.    emission factors from EPA’s publication AP-42, Vol. I, adopted by reference in 18 AAC 50.035; or
    - d.    other methods and calculations approved by the Department.
3.    **Assessable Emission Estimates.** Emission fees will be assessed as follows:
  - 3.1    no later than March 31st of each year, the Permittee may submit an estimate of the stationary source’s assessable emissions to ADEC, Air Permits Program, ATTN: Assessable Emissions Estimate, 410 Willoughby Avenue, PO Box 111800, Juneau, AK 99811-1800. The submittal must include all of the assumptions and calculations used to estimate the assessable emissions in sufficient detail so the Department can verify the estimates; or
  - 3.2    if no estimate is received on or before March 31<sup>st</sup> of each year, emission fees for the next fiscal year will be based on the potential to emit set forth in Condition 2.1.

### **Section 3 State Emission Standards**

4. **Industrial Process and Fuel-Burning Equipment Visible Emissions (VE).** The Permittee shall not cause or allow VE, excluding water vapor, emitted from industrial process and fuel burning EUs listed in Table 1 to reduce visibility through the exhaust effluent by more than 20 percent averaged over any six consecutive minutes in any one hour. Monitor, record, and report as follows:
  - 4.1 For EUs 11 through 13, 22, 23, 44, 48 through 59, 65, and 66; record the date of initial startup<sup>1</sup> of each EU.
  - 4.2 For diesel-fired EU 65, verify initial compliance with Condition 4 no later than 90 days after initial startup of the EU as follows:
    - a. Obtain a certified manufacturer’s guarantee that shows that the EUs will comply with Condition 4; or
    - b. Conduct VE source test as described in 40 CFR 60, Appendix A-4 Method 9;
    - c. Report in the operating report required under Condition 57, the manufacturer guarantee or the VE source test results required in Condition 4.2a or 4.2b.
  - 4.3 The Permittee shall use only gas as fuel in EUs 11 through 13, 22, 23, 44, and 48 through 59. The Permittee shall certify in each operating report required under Condition 57 that EUs burned only gas.
5. **VE Emissions Monitoring.** The Permittee shall observe the exhaust of EUs 35 and 36 for VE using Method 9 Plan described under Condition 5.1.
  - 5.1 *Method 9 Plan:* For all 18-minute observations in this plan, observe exhaust, following 40 CFR 60, Appendix A-4, Method 9, Adopted by Reference in 18 AAC 50.040(a), for 18 minutes to obtain 72 consecutive 15-second opacity observations.
    - a. First Method 9 Observation: Observe exhaust for 18 minutes within 90 days after initial startup. For any EUs replaced, observe exhaust for 18 minutes within 30 days of startup.
    - b. Monthly Method 9 Observations: After the first Method 9 observation, perform 18-minute observations at least once in each calendar month that an EU operates.

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<sup>1</sup> Startup is defined as the period that begins when fuel is supplied to the unit and ends when the unit reaches stable operations.

- c. Semiannual Method 9 Observation: After observing emissions for three consecutive operating months under Condition 5.1b, unless a six-minute average exceeds 15 percent and one or more observations exceed 20 percent, perform 18-minute observations at least semiannually:
    - (i) Within six months after the preceding observation; or
    - (ii) For an emission unit with intermittent operations, within 30 days after the next scheduled operation immediately following six months after the preceding observation.
  - d. Annual Method 9 Observations: After at least two semiannual 18-minute observations, unless a six-minute average exceeds 15 percent and one or more observations exceed 20 percent, perform 18-minute observations:
    - (i) Within 12 months after the preceding observation; or
    - (ii) For an emission unit with intermittent operations, within 30 days after the next scheduled operation immediately following 12 months after the preceding observation.
  - e. Increased Method 9 Frequency: If a six-minute average opacity observed during the most recent set of observations exceeds 15 percent and one or more observations exceeds 20 percent, then increase or maintain the 18-minute observation frequency for that EU to at least monthly, until the criteria in Condition 5.1c for semiannual monitoring are met.
6. **VE Recordkeeping.** The Permittee shall keep records as follows:
- 6.1 When using the Method 9 Plan of Condition 5.1:
    - a. The observer shall record
      - (i) the name of the stationary source, EU and location, EU type, observer's name and affiliation, and the date on the VE Emissions Field Data Sheet in Attachment 1;
      - (ii) the time, estimated distance to the emissions location, sun location, approximate wind direction, estimated wind speed, description of the sky condition (presence and color of clouds), plume background, and operating rate (load or fuel consumption rate) on the sheet at the time opacity observations are initiated and completed;
      - (iii) the presence or absence of an attached or detached plume and the approximate distance from the emissions outlet to the point in the plume at which the observations are made;
      - (iv) opacity observations to the nearest five percent at 15-second intervals on the VE Observations Record in Attachment 1; and

- (v) the minimum number of observations required by the permit; each momentary observation recorded shall be deemed to present the average opacity of emissions for a 15-second period.
  - b. To determine the six-minute average opacity, divide the observations recorded on the record sheet into sets of 24 consecutive observations; sets need not be consecutive in time and in no case shall two sets overlap; for each set of 24 observations, calculate the average by summing the opacity of the 24 observations and dividing this sum by 24; record the average opacity on the sheet.
  - c. Calculate and record the highest 18 consecutive minute average observed.
- 7. **VE Reporting.** The Permittee shall report VE as follows:
  - 7.1 In each stationary source operating report required under Condition 57, include for the period covered by the report:
    - a. Copies of the observation results (i.e. opacity observations) for the EUs, except for the observations the Permittee has already submitted to the Department; and
    - b. A summary to include:
      - (i) Number of days observations were made;
      - (ii) Highest six-minute average observed; and
      - (iii) Dates when one or more observed six-minute averages exceeded 20 percent.
    - c. A summary of any monitoring or recordkeeping required under Condition 5 and Condition 6 that was not done.
  - 7.2 Report under Condition 56:
    - a. The results of Method 9 observations that exceed an average of 20 percent opacity for any six-minute period; and
    - b. Any monitoring under Condition 5 that was not performed when required.
    - c. If any fuel is burned other than fuel gas or natural gas in EUs 12, 13, 22, 23, 44, and 48 through 59.
- 8. **Industrial Process and Fuel-Burning Equipment Particulate Matter (PM).** The Permittee shall not cause or allow PM emitted from industrial process and fuel burning EUs listed in Table 1 to exceed 0.05 grains per dry standard cubic foot of exhaust gas corrected to standard conditions and averaged over three hours, under 18 AAC 50.055(b).
- 9. **Sulfur Compound Emissions.** The Permittee shall not cause or allow sulfur compound emissions, expressed as sulfur dioxide SO<sub>2</sub>, from industrial process and fuel burning EUs listed in Table 1 to exceed 500 parts per million by volume (ppmv) averaged over a period of three hours, under 18 AAC 50.055(c).

## Section 4 Ambient Air Quality Protection Requirements

### General Requirements

10. The Permittee shall operate the stationary source as described below:

#### Stack Configuration

- 10.1 Construct and maintain vertical, uncapped stacks for all EUs listed in Table 1 with stacks, except as noted below:
- EUs 13, 41, 41B, 41C, 47C, 47D, 60, 61, 65, and 66 may have capped or horizontal releases; and
  - This condition does not preclude the use of flapper valve rain covers, or other similar designs, that do not hinder the vertical momentum of the exhaust plume;
- 10.2 Confirm in the first operating report required under Condition 57 that would be due after the installation of each EU that the exhaust stack for that EU listed in Table 1 complies with Condition 10.1 and Condition 10.3.

#### Stack Heights

- 10.3 Construct and maintain the stacks for the EUs listed in Table 2 with release points above grade that equal or exceed the height indicated in Table 2, to protect the AAAQS and Class II increments associated with the given EU.

**Table 2 – Required Stack Heights**

EU	Description	Emitted Pollutants	Min. Stack Height (ft)
12	Primary Reformer	NO <sub>x</sub> , CO, PM-10, PM-2.5	100
14	CO <sub>2</sub> Vent	CO, NH <sub>3</sub>	154
19	H <sub>2</sub> Vent Stack	CO, NH <sub>3</sub>	80
35 - 36	Granulator Scrubber Exhaust Vents Stack	PM-10, PM-2.5, NH <sub>3</sub>	140
44, 48, 49	Package Boilers	NO <sub>x</sub> , CO, PM-10, PM-2.5	100
50 - 54	Waste Heat Boilers	NO <sub>x</sub> , CO, PM-10, PM-2.5	100
55 – 59	Solar Turbine Bypass Stack	NO <sub>x</sub> , CO, PM-10, PM-2.5	60

- 10.4 Provide as-built drawings and photographs of the stack for each EU listed in Table 2 no later than the second operating report required under Condition 57 that would be due after installation of the stack.
- 10.5 Comply with the BACT limits in Section 5, in order to protect the NO<sub>2</sub>, PM-10, PM-2.5, and CO Alaska Ambient Air Quality Standards (AAAQS) and Class II increments (as applicable).

#### Limits to Protect Short-term AAAQS and Class II increments

11. To protect the 24-hour PM-10 AAAQS and increment, and the 24-hour PM-2.5 AAAQS and increment, the Permittee shall limit the operation of the Gasoline Fired Firewater Pump (EU 66) to no more than four hours per day. Monitor, record, and report as follows:



- 11.1 Monitor and record EU 66's operating hours each day the unit operates. If EU 66 operates more than four hours per calendar day, report as excess emissions and permit deviation as described in Condition 56.
12. To protect the 1-hour NO<sub>2</sub> AAAQS, the 1-hour and 8-hour CO AAAQS, the 24-hour PM-10 AAAQS and increment, and the 24-hour PM-2.5 AAAQS and increment, the Permittee shall not operate more than one Solar Combustion Turbine (EU 55 – 59) in bypass mode at a time. Monitor, record, and report as follows:
  - 12.1 Monitor and record the start and end time (including date) each EU 55 through 59 operate in bypass mode. If more than one of EUs 55 through 59 operate in bypass mode at a time, report as excess emissions and permit deviation as described in Condition 56.
13. To protect the 1-hour NO<sub>2</sub> AAAQS, the Permittee shall limit the annual operation of the EUs listed below as follows:
  - 13.1 Startup Heater (EU 13): do not operate for more than 200 hours per year;
  - 13.2 Diesel Fired Well Pump (EU 65): do not operate for more than 168 hours per year; and
  - 13.3 Gasoline Fired Firewater Pump (EU 66): do not operate more than 168 hours per year.
  - 13.4 Monitor and record the hours of operation of EUs 13, 65, and 66 as described in Conditions 19 and 21. If the operating hours for EUs 13, 65, or 66 exceed the limits in Condition 13, report as excess emissions and permit deviation as described in Condition 56.

**Limits to Protect Annual AAAQS and Class II increments**

14. To protect the annual NO<sub>2</sub> AAAQS, the annual NO<sub>2</sub> increment, the annual PM-10 increment, the annual PM-2.5 AAAQS and the annual PM-2.5 increment, the Permittee shall limit the annual operation of the EUs listed below as follows:
  - 14.1 Solar Combustion Turbines (EUs 55 – 59): the total operation in bypass mode shall not exceed 204 hours per year;
  - 14.2 Startup Heater (EU 13): do not operate for more than 200 hours per year;
  - 14.3 Diesel Fired Well Pump (EU 65): do not operate for more than 168 hours per year; and
  - 14.4 Gasoline Fired Firewater Pump (EU 66): do not operate for more than 168 hours per year.
  - 14.5 Monitor and record the hours of operation of EUs 13, 55 through 59, 65, and 66 as described in Conditions 15, 19, and 21. If the operating hours for EUs 13, 55 through 59, 65, or 66 exceed the limits in Condition 14, report as excess emissions and permit deviation as described by Condition 56.

## Section 5 Best Available Control Technology

### BACT Limits

15. **Turbine Emission Limits:** The Permittee shall limit the emissions from the turbines (EUs 55 through 59) as specified in Table 3:

**Table 3 – Turbine BACT Limits for NO<sub>x</sub>, CO, PM, VOC, and GHGs**

EU ID	Pollutant	BACT Limit	Control Method
55-59	NO <sub>x</sub>	7 ppm <sub>vd</sub> at 15 % O <sub>2</sub> (3-hr average)	Selective Catalytic Reduction
	CO	50 ppm <sub>vd</sub> at 15 % O <sub>2</sub> (3-hr average)	No Controls
	VOC	0.0021 lb/MMBtu (3-hr average)	No Controls
	PM/PM-10/PM-2.5	0.0074 lb/MMBtu (3-hr average)	No Controls
	CO <sub>2e</sub>	59.61 tons/MMcf (3-hr average) 91,500 tpy combined	Waste Heat Recovery

- 15.1 Limit the number of hours EUs 55 through 59 operate without waste heat boilers (bypassing the selective catalytic reduction control system) to no more than 204 hours per 12 consecutive month period, each.
- 15.2 Monitor, record, and report as described below:
- a. Calculate and record monthly, the number of hours each of EUs 55 through 59 operated without a waste heat boiler, for the previous month;
  - b. Calculate and record monthly, the number of hours each of EUs 55 through 59 operated without a waste heat boiler for the previous 12 consecutive month period;
  - c. Report in the operating report required in Condition 57 for each month covered in the operating report, the total hours each of EUs 55 through 59 operated without a waste heat boiler as recorded in Condition 15.2b; and
  - d. Report as excess emissions as described in Condition 56 whenever the operating hours of any of EUs 55 through 59, for the 12 consecutive month period, exceed the limit in Condition 15.1.
- 15.3 To demonstrate initial compliance with the limits in Table 3, comply with the monitoring, recordkeeping, and reporting requirements of Condition 18.

16. **Primary Reformer BACT Limits:** The Permittee shall limit the emissions from EU 12 as specified in Table 4:

**Table 4 –Reformer BACT Limits for NOx, CO, PM, VOC, and GHGs**

EU ID	Pollutant	BACT Limit	Control Method
12	NOx	17 ppm <sub>vd</sub> at 3% O <sub>2</sub> (30-day average)	Selective Catalytic Reduction
	CO	0.043 lb/MMBtu (3-hr average)	No Controls
	VOC	0.0054 lb/MMBtu (3-hr average)	No Controls
	PM/PM-10/PM-2.5	0.0074 lb/MMBtu (3-hr average)	No Controls
	CO <sub>2</sub> e	59.61 tons/MMcf (3-hr average) 700,000 tons per year	No Controls

- 16.1 The Permittee shall develop a preventative maintenance plan within 180 days of initial startup and submit it to the Department with the first operating report required under Condition 57.
- 16.2 Install, operate, and maintain selective catalytic reduction on EU 12, according to the manufacture’s specifications, at all times the unit is in operation.
- 16.3 To show compliance with the NOx emission limit set out in Table 4, the Permittee shall:
- a. Install, certify, maintain, and operate a NOx continuous emissions monitoring system (CEMS) consisting of a NOx monitor and a diluent gas (oxygen (O<sub>2</sub>) or carbon dioxide (CO<sub>2</sub>)) monitor, to determine the hourly NOx emission rate in parts per million (ppm) or pounds per million British thermal units (lb/MMBtu).
  - b. Each NO<sub>x</sub> and diluent CEMS must be installed and certified according to Performance Specification 2 (PS 2) in appendix B of 40 C.F.R. 60, except the 7-day calibration drift is based on unit operating days, not calendar days. The relative accuracy test audit (RATA) of the CEMS shall be performed on a ppm or lb/MMBtu basis.
  - c. As specified in §60.13(e)(2), during each full unit operating hour, both the NOx monitor and the diluent monitor must complete a minimum of one cycle of operation (sampling, analyzing, and data recording) for each 15-minute quadrant of the hour, to validate the hour. For partial unit operating hours, at least one valid data point must be obtained with each monitor for each quadrant of the hour in which the unit operates. For unit operating

hours in which required quality assurance and maintenance activities are performed on the CEMS, a minimum of two valid data points (one in each of two quadrants) are required for each monitor to validate the NO<sub>x</sub> emission rate for the hour.

- d. The owner or operator shall develop and keep on-site a quality assurance (QA) plan for the NO<sub>x</sub> and O<sub>2</sub> CEMS.

16.4 Continuous emission monitoring to identify excess emissions:

- a. All CEMS data shall be reduced to hourly averages as specified in 40 C.F.R. 60.13(h).
- b. For each unit operating hour in which a valid hourly average, as described in Condition 16.3c, is obtained for both NO<sub>x</sub> and diluent monitors, the data acquisition and handling system must calculate and record the hourly NO<sub>x</sub> emission rate in units of ppm or lb/MMBtu, using the appropriate equation from Method 19 in Appendix A of Part 60.
- c. Calculate the hourly average NO<sub>x</sub> emission rates, in units of the emission standards under §60.44.
- d. Use the calculated hourly average emission rates from Condition 16.4c to assess excess emissions on a 30-day average.
- e. Each NO<sub>x</sub> CEMS must meet all applicable quality assurance and data recovery requirements of 40 C.F.R. 60.13.

16.5 Reporting Requirements:

- a. For all reports required under §60.7(c), report in accordance with Conditions 32 and 33.

16.6 Excess Emissions of NO<sub>x</sub> and Downtime for CEMS:

- a. For EU 12:
  - (i) An excess emission for any unit is when the 30-day rolling average NO<sub>x</sub> emission rate exceeds the applicable emission limit in Condition 16. For the purposes of this condition, a “30-day rolling average NO<sub>x</sub> emission rate” is the arithmetic average of all hourly NO<sub>x</sub> emission data in ppm or ng/J (lb/MWh) measured by the continuous emission monitoring equipment for a given day and the twenty-nine unit operating days immediately preceding that unit operating day. A new 30-day average is calculated for each operating day as the average of all hourly NO<sub>x</sub> emissions rates for the preceding 30 unit operating days if a valid NO<sub>x</sub> emission rate is obtained for at least 75 percent of all operating hours.

*NOTE: The NO<sub>x</sub> BACT limit for EU 12, as specified in Table 4, is valid at all times, except during startup and shutdown when the catalyst is below normal operating temperature, including while performing the NO<sub>x</sub> performance tests and RATA's required by 40 CFR 60.*

- (ii) A period of monitor downtime is any unit operating hour in which the data for any of the following parameters are either missing or invalid: NO<sub>x</sub> concentration, CO<sub>2</sub> or O<sub>2</sub> concentration, fuel flow rate, steam flow rate, steam temperature, steam pressure, or megawatts. The steam flow rate, steam temperature, and steam pressure are only required if you will use this information for compliance purposes.
  - (iii) For operating periods during which multiple emissions standards apply, the applicable standard is the average of the applicable standards during each hour. For hours with multiple emissions standards, the applicable limit for that hour is determined based on the condition that corresponded to the highest emissions standard.  
*Note: Condition 16.6a(iii) does not include the BACT limit, it is only referring to the standards under 40 CFR 60 Subpart D.*
- 16.7 Maintain the NO<sub>x</sub> and oxygen CEMS sampling probe in the exhaust stack of the reformer furnace. Continuously monitor and record the rolling 30-day average NO<sub>x</sub> concentration in parts per million, dry basis, by volume (ppm<sub>vd</sub>) and oxygen concentration measurements. Correct each rolling 30-day average NO<sub>x</sub> concentration to 3 percent O<sub>2</sub>.
- 16.8 In each operating report under Condition 57, the Permittee shall attach:
- a. The maximum rolling 30-day average NO<sub>x</sub> emission concentration corrected to 3 percent O<sub>2</sub> obtained from each CEMS required under Condition 16.3a;
  - b. The date time, and duration, and rolling 30-day average NO<sub>x</sub> emission concentration corrected to 3 percent O<sub>2</sub> for any period exceeding the limit in Table 4 or a copy of the excess emission report filed under Condition 16.13.
- 16.9 If the rolling 30-day average NO<sub>x</sub> emissions exceed the limit in Table 4, the Permittee shall report as an excess emission under Condition 56.
- 16.10 Within the first 180 days of operation of EU 12, the Permittee shall conduct a source test in accordance with Section 7 of this permit to demonstrate initial compliance with the CO limit listed in Table 4.
- 16.11 Conduct the test on EU 12 for at least two loads representative of the normal operating range of the EU.

- 16.12 Report in the operating report required in Condition 57 the worst case emission rate determined in the source test required by Condition 16.10.
- 16.13 Report as excess emissions and permit deviation as described in Condition 56 if any of the emission rates determined in the source test required by Condition 16.10, exceed the limit in Table 4.
17. **Package Boilers BACT Limits:** The Permittee shall limit the emissions from EUs 44, 48, and 49 as specified in Table 5:

**Table 5 – Package Boilers BACT Limits for NO<sub>x</sub>, CO, PM, VOC, and GHGs**

EU ID	Pollutant	BACT Limit	Control Method
44, 48, & 49	NO <sub>x</sub>	0.01 lb/MMBtu (30-day rolling average)	Ultra Low NO <sub>x</sub> Burners
	CO	50 ppm <sub>vd</sub> at 3% O <sub>2</sub> (3-hr average)	No Controls
	VOC	0.0054 lb/MMBtu (3-hr average)	No Controls
	PM/PM-10/PM-2.5	0.0074 lb/MMBtu (3-hr average)	No Controls
	CO <sub>2e</sub>	59.61 tons/MMcf (3-hr average) 376,500 tons per year (combined)	No Controls

- 17.1 The Permittee shall develop a preventative maintenance plan within 180 days of initial startup and submit it to the Department with the first operating report required under Condition 57.
- 17.2 To show compliance with the NO<sub>x</sub> emission limit set out in Table 5, the Permittee shall:
- a. Install, certify, maintain, and operate a NO<sub>x</sub> CEMS consisting of a NO<sub>x</sub> monitor and a diluent gas (O<sub>2</sub> or CO<sub>2</sub>) monitor, to determine the hourly NO<sub>x</sub> emission rate in ppm or lb/MMBtu.
  - b. Each NO<sub>x</sub> and diluent CEMS must be installed and certified according to PS 2 in appendix B of 40 C.F.R. 60, except the 7-day calibration drift is based on unit operating days, not calendar days. The RATA of the CEMS shall be performed on a ppm or lb/MMBtu basis.

- c. As specified in §60.13(e)(2), during each full unit operating hour, both the NO<sub>x</sub> monitor and the diluent monitor must complete a minimum of one cycle of operation (sampling, analyzing, and data recording) for each 15-minute quadrant of the hour, to validate the hour. For partial unit operating hours, at least one valid data point must be obtained with each monitor for each quadrant of the hour in which the unit operates. For unit operating hours in which required quality assurance and maintenance activities are performed on the CEMS, a minimum of two valid data points (one in each of two quadrants) are required for each monitor to validate the NO<sub>x</sub> emission rate for the hour.
- d. The owner or operator shall develop and keep on-site a QA plan for the NO<sub>x</sub> CEMS.

17.3 Continuous emission monitoring to identify excess emissions:

- a. All CEMS data shall be reduced to hourly averages as specified in 40 C.F.R. 60.13(h).
- b. For each unit operating hour in which a valid hourly average, as described in Condition 17.2c, is obtained for both NO<sub>x</sub> and diluent monitors, the data acquisition and handling system must calculate and record the hourly NO<sub>x</sub> emission rate in units of ppm or lb/MMBtu, using the appropriate equation from Method 19 in Appendix A of Part 60.
- c. Calculate the hourly average NO<sub>x</sub> emission rates, in units of the emission standards under §60.44, using ppm.
- d. Use the calculated hourly average emission rates from Condition 17.3c to assess excess emissions on a 30-day rolling average.
- e. Each NO<sub>x</sub> CEMS must meet all applicable quality assurance and data recovery requirements of 40 C.F.R. 60.13.

17.4 Reporting Requirements:

- a. For all reports required under §60.7(c), report in accordance with Conditions 32 and 33.

17.5 Excess Emissions of NO<sub>x</sub> and Downtime for CEMS:

- a. For EUs 44, 48, and 49:
  - (i) An excess emission for any unit is when the 30-day rolling average NO<sub>x</sub> emission rate exceeds the applicable emission limit in Condition 17. For the purposes of this condition, a “30-day rolling average NO<sub>x</sub> emission rate” is the arithmetic average of all hourly NO<sub>x</sub> emission data in ppm or ng/J (lb/MWh) measured by the continuous emission monitoring equipment for a given hour and the two unit operating hours immediately preceding that unit operating hour. A new 30-day average is calculated for each

operating hour as the average of all hourly NO<sub>x</sub> emissions rates for the preceding 3 unit operating hours if a valid NO<sub>x</sub> emission rate is obtained for at least 75 percent of all operating hours.

*NOTE: The NO<sub>x</sub> BACT limit for EUs 44, 48, and 49, as specified in Table 5, is valid at all times, including while performing the NO<sub>x</sub> performance tests and RATA's required by 40 CFR 60.*

- (ii) A period of monitor downtime is any unit operating hour in which the data for any of the following parameters are either missing or invalid: NO<sub>x</sub> concentration, CO<sub>2</sub> or O<sub>2</sub> concentration, fuel flow rate, steam flow rate, steam temperature, steam pressure, or megawatts. The steam flow rate, steam temperature, and steam pressure are only required if you will use this information for compliance purposes.
- (iii) For operating periods during which multiple emissions standards apply, the applicable standard is the average of the applicable standards during each hour. For hours with multiple emissions standards, the applicable limit for that hour is determined based on the condition that corresponded to the highest emissions standard.

*Note: Condition 17.5a(iii) does not include the BACT limit, it is only referring to the standards under 40 CFR 60 Subpart Db.*

- 17.6 Maintain the NO<sub>x</sub> and oxygen CEMS sampling probe in each exhaust stack of the package boilers. Continuously monitor and record the rolling 30-day average NO<sub>x</sub> concentration in parts per million, dry basis, by volume (ppm<sub>vd</sub>) and oxygen concentration measurements. Correct each rolling 30-day average NO<sub>x</sub> concentration to 3 percent O<sub>2</sub>.
- 17.7 Record the starting and ending times of each startup period for the package boilers. Maintain a log to document date, time, and duration.
- 17.8 In each operating report under Condition 57, the Permittee shall attach:
  - a. The maximum rolling 30-day average NO<sub>x</sub> emission concentration corrected to 3 percent O<sub>2</sub> obtained from each CEMS required under Condition 17.2a;
  - b. The date, time, and duration of each startup period for the package boilers;
  - c. The date time, and duration, and rolling 30-day average NO<sub>x</sub> emission concentration corrected to 3 percent O<sub>2</sub> for any period exceeding the limit in Table 5 or a copy of the excess emission report filed under Condition 17.12.
- 17.9 If the rolling 30-day average NO<sub>x</sub> emissions exceed the limit in Table 5, the Permittee shall report as an excess emission under Condition 56.



- 17.10 Within 180 days from initial startup of the first of EUs 44, 48, and 49, the Permittee shall a conduct source test in accordance with Section 7 of this permit to demonstrate initial compliance with the CO limit listed in Table 5.
- 17.11 Conduct the tests on one of EUs 44, 48, and 49 for at least two loads representative of the normal operating range of the EUs.
- 17.12 Report in the operating report required in Condition 57 the worst case emission rate determined in the source test required by Condition 17.10.
- 17.13 Report as excess emissions and permit deviation as described in Condition 56 if any of the emission rates determined in the source test required by Condition 17.10, exceed the limits in Table 5.

18. **Waste Heat Boilers BACT Limits:** The Permittee shall limit the emissions from EUs 50 through 54 as specified in Table 6:

**Table 6 - Waste Heat Boilers BACT Limits for NO<sub>x</sub>, CO, PM, VOC, and GHGs**

EU ID	Pollutant	BACT Limit	Control Method
50 – 54	NO <sub>x</sub>	7 ppm <sub>vd</sub> at 15% O <sub>2</sub> (3-hr average)	Selective Catalytic Reduction
	CO	50 ppm <sub>vd</sub> at 15% O <sub>2</sub> (3-hr average)	No Controls
	VOC	0.0054 lb/MMBtu (3-hr average)	No Controls
	PM/PM-10/PM-2.5	0.0074 lb/MMBtu (3-hr average)	No Controls
	CO <sub>2e</sub>	59.61 tons/MMcf (3-hr average) 131,405 tons per year (combined)	No Controls

- 18.1 Install, operate, and maintain selective catalytic reduction on EUs 50 through 54, according to the manufacture’s specifications, at all times the units are operating.
- 18.2 Within 180 days from initial startup of the first of EUs 50 through 54 and 55 through 59, the Permittee shall conduct source tests in accordance with Section 7 of this permit to demonstrate initial compliance with the NO<sub>x</sub> and CO limits listed in Table 3 and Table 6.
- 18.3 Conduct the tests on one of EUs 50 through 54 for at least two loads representative of the normal operating range of the EUs, while the exhaust from one of EUs 55 through 59 is routed through the waste heat boiler and then through a selective catalytic reduction control system (representative of the normal operation scenario).

- 18.4 Report in the operating report required in Condition 57 the worst case emission rates determined in the source tests required by Condition 18.2.
- 18.5 Report as excess emissions and permit deviation as described in Condition 56 if any of the emission rates determined in the source tests required by Condition 18.2 exceed the limits in Table 3 or Table 6.

19. **Startup Heater BACT Limits:** The Permittee shall limit the emissions from EU 13 as specified in Table 7:

**Table 7 – Startup Heater BACT Limits for NO<sub>x</sub>, CO, PM, VOC, and GHGs**

EU ID	Pollutant	BACT Limit	Control Method
13	NO <sub>x</sub>	0.098 lb/MMBtu	No Controls and Limited Use
	CO	0.082 lb/MMBtu	No Controls and Limited Use
	VOC	0.0054 lb/MMBtu	No Controls and Limited Use
	PM/PM-10/PM-2.5	0.0074 lb/MMBtu	No Controls and Limited Use
	CO <sub>2e</sub>	59.61 tons/MMcf 1,200 tons per year	No Controls and Limited Use

- 19.1 Limit the hours of operation that EU 13 operates to no more than 200 hours per 12 consecutive month period.
- 19.2 Equip EU 13 with either a non-resettable hour meter or another Department approved methodology to monitor the monthly hours of operation.
- 19.3 Monitor, record, and report as described below:
  - a. Calculate and record monthly, the number of hours EU 13 operated for the previous month;
  - b. Calculate and record monthly, the number of hours EU 13 operated for the previous 12 consecutive month period;
  - c. Report in the operating report required in Condition 57, for each month covered in the report, the total hours EU 13 operated as recorded in Condition 19.3b; and
  - d. Report as excess emissions as described in Condition 56 whenever the operating hours of EU 13, as recorded in Condition 19.3c, exceed the limit in Condition 19.1.

20. **Flares BACT Limits:** The Permittee shall limit the emissions from EUs 11, 22, and 23 as specified in Table 8.

**Table 8 – Flares BACT Limits for NOx, CO, PM, VOC, and GHGs**

EU ID	Pollutant	BACT Limit	Control Method
11, 22, & 23	NOx	0.068 lb/MMBtu SSM venting limited to 168 hours/year (each)	Work Practice Requirements and Limited Use
	CO	0.37 lb/MMBtu SSM venting limited to 168 hours/year (each)	Work Practice Requirements and Limited Use
	VOC	0.0054 lb/MMBtu SSM venting limited to 168 hours/year (each)	Work Practice Requirements and Limited Use
	PM/PM-10/PM-2.5	0.0074 lb/MMBtu SSM venting limited to 168 hours/year (each)	Work Practice Requirements and Limited Use
	CO <sub>2e</sub>	59.61 tons/MMcf 1,500 tons per year (combined)	Work Practice Requirements and Limited Use

- 20.1 To show compliance with the work practice BACT limits indicated in Table 8, the Permittee shall comply with the following flare minimization practices to reduce emissions during startups, shutdowns, and other maintenance events:
- a. Flare Use Minimization: The Permittee shall limit periods when the backup storage compressor and the ammonia refrigeration compressor are offline at the same time to the extent practicable; and
  - b. The Permittee shall train all operators responsible for the day-to-day operation of the flares on the flare minimization practices and the specific procedures to follow during process startup, shutdown, and other flaring events.
- 20.2 Flares shall be designed and operated during startups, shutdowns, and other maintenance events, in accordance with the general control device and work practice requirements specified in 40 CFR 60.18(c) and (f).
- 20.3 Limit the number of hours EUs 11, 22, and 23 vent during startup, shutdown, and maintenance events, to no more than 168 hours per 12 consecutive month period, each.
- 20.4 Monitor, record, and report as follows:
- a. Calculate and record monthly, the number of hours each EU 11, 22, and 23 operated during startups, shutdowns, and other maintenance events for the previous month;

- b. Calculate and record monthly, the number of hours each EU 11, 22, and 23 operated during startups, shutdowns, and other maintenance events for the previous 12 consecutive month period;
- c. Report in the operating report required in Condition 57, for each month covered in the report, the total hours each EU 11, 22, and 23 operated as recorded in Condition 20.4b;
- d. A certification in each operating report that the source complied with the requirements in Conditions 20.1a and 20.1b; and
- e. Report as excess emissions as described in Condition 56 whenever the total operating hours of EU 11, 22, or 23 as recorded in Condition 20.4c, exceed the limit in Condition 20.3.

21. **Pump Engines BACT Limits:** The Permittee shall limit the emissions from EUs 65 and 66 as specified in Table 9:

**Table 9 – Pump Engines BACT Limits for NO<sub>x</sub>, CO, PM, VOC, and GHGs**

EU ID	Pollutant	BACT Limit	Control Method
65	NO <sub>x</sub>	4.41 lb/MMBtu	Limited Use
	CO	0.95 lb/MMBtu	Limited Use
	VOC	0.36 lb/MMBtu	Limited Use
	PM/PM-10/PM-2.5	0.31 lb/MMBtu	Limited Use
	CO <sub>2</sub> e	37.2 tons per year	Limited Use
66	NO <sub>x</sub>	1.63 lb/MMBtu	Limited Use
	CO	0.99 lb/MMBtu	Limited Use
	VOC	3.03 lb/MMBtu	Limited Use
	PM/PM-10/PM-2.5	0.1 lb/MMBtu	Limited Use
	CO <sub>2</sub> e	27.2 tons per year	Limited Use

- 21.1 Limit the hours EUs 65 and 66 operate to no more than 168 hours per 12 consecutive month period, each.
- 21.2 Monitor, record, and report as described below:
  - a. Calculate, record, and report monthly, the number of hours each EU 65 and 66 operated for the previous month;

- b. Calculate and record monthly, the number of hours each EU 65 and 66 operated for the previous 12 consecutive month period;
- c. Report in the operating report required in Condition 57, for each month covered in the report, the total hours each EU 65 and 66 operated as recorded in Condition 21.2b; and
- d. Report as excess emissions as described in Condition 56 whenever the total operating hours of EU 65 or 66, as recorded in Condition 21.2c, exceed the limit in Condition 21.1.

22. **CO<sub>2</sub> Vent BACT Limits:** The Permittee shall limit the emissions from EU 14 as specified in Table 10:

**Table 10 – CO<sub>2</sub> Vent BACT Limits for VOC and GHGs**

EU ID	Pollutant	BACT Limit	Control Method
14	VOC	11.4 lb/hour (hourly max)	No Controls
	CO <sub>2e</sub>	845,486 tons/year	No Controls

- 22.1 Within 180 days from initial startup of EU 14, the Permittee shall demonstrate compliance with the CO<sub>2e</sub> limit listed Table 10, using the procedures of 40 CFR Part 98 Subpart G.
- 22.2 Report in the operating report required in Condition 57 the emission rates determined by the 40 CFR Part 98 Subpart G procedures in Condition 22.1.
- 22.3 Report as excess emissions and permit deviation as described in Condition 56 if the emission rate determined in Condition 22.2, exceed the CO<sub>2e</sub> limit in Table 10.

23. **H<sub>2</sub> Vent BACT Limits:** The Permittee shall limit the startup, shutdown, and maintenance emissions from EU 19 as specified in Table 11:

**Table 11 – H<sub>2</sub> Vent BACT Limit for CO**

EU ID	Pollutant	BACT Limit	Control Method
19	CO	15,222 lb/startup	Limited Use

- 23.1 Limit the hours EU 19 operates to no more than 200 hours per 12 consecutive month period.
- 23.2 Monitor, record, and report as described below:
  - a. Calculate, record and report monthly, the number of hours EU 19 operated for the previous month;

- b. Calculate and record monthly, the number of hours EU 19 operated for the previous 12 consecutive month period;
- c. Report in the operating report required in Condition 57, for each month covered in the report, the total hours EU 19 operated as recorded in Condition 23.2b; and
- d. Report as excess emissions as described in Condition 56 whenever the total operating hours of EU 19, as recorded in Condition 23.2c, exceed the limit in Condition 23.1.

24. **Urea Granulation BACT Limits:** The Permittee shall limit the emissions from EUs 35 and 36 as specified in Table 12:

**Table 12 – Urea Granulation BACT Limits for PM, and VOC**

EU ID	Pollutant	BACT Limit	Control Method
35 & 36	VOC	90% Control of Methanol, Methanol Concentration < 2ppmvd (whichever is less restrictive)	Wet Scrubber
	PM/PM-10/PM-2.5	0.2 lb/ton of urea produced	Wet Scrubber 90% Control

- 24.1 Install, operate, and maintain wet scrubbers on EUs 35 and 36, according to the manufacture’s specifications, at all times the process is in operation.
- 24.2 Within 180 days from initial startup of the first of EUs 35 or 36, the Permittee shall conduct source tests in accordance with Section 7 of this permit to demonstrate initial compliance with the VOC and PM limits listed in Table 12.
- 24.3 Conduct the tests on one of EUs 35 or 36 at the maximum achievable load for that unit, representative of the normal operating range of the EUs.
- 24.4 Report in the operating report required in Condition 57 the worst case emission rates determined in the source tests required by Condition 24.2.
- 24.5 Report as excess emissions and permit deviation as described in Condition 56 if any of the emission rates determined in the source tests required by Condition 24.2 exceed the limits in Table 12, or if EUs 35 or 36 operate without the use of wet scrubber(s).

25. **UF-85 Storage Tank BACT Limits:** The Permittee shall limit the emissions from EU 41A as specified in Table 13:

**Table 13 – UF-85 Tank BACT Limits for VOC**

EU ID	Pollutant	BACT Limit	Control Method
41A	VOC	0.00004 lb/hr	Wet Scrubber

- 25.1 Install, operate, and maintain wet scrubbers on EU 41A, according to the plant’s appropriate standard operating procedure, at all times the tank is being filled.
- 25.2 Compliance with the VOC limit shall be demonstrated by submitting a certificate of compliance with Condition 25.1, with each operating report required under Condition 57.

26. **MDEA Storage Tanks BACT Limits:** The Permittee shall limit the emissions from EUs 41B and 41C as specified in Table 14:

**Table 14 – MDEA Tanks BACT Limits for VOC**

EU ID	Pollutant	BACT Limit	Control Method
41B & 41C	VOC	0.002 tons per year (combined)	Submerged Fill Design

- 26.1 Install, operate, and maintain tanks with submerged fill design on EUs 41B and 41C, according to the manufacture’s specifications, at all times the tanks are in operation.
- 26.2 Compliance with the VOC limit shall be demonstrated by submitting a certificate of compliance with Condition 26.1, with each operating report required under Condition 57.

27. **Urea Ship Loading BACT Limits:** The Permittee shall limit the emissions from EU 47 as specified in Table 15:

**Table 15 – Ship Loading BACT Limits for PM, PM-10, and PM-2.5**

EU ID	Pollutant	BACT Limit	Control Method
47	PM	<b>0.00125 lb/ton of urea</b>	Use of UF-85 (Hardening Agent), Product Coolers on Granulation Urea Process Lines
	PM-10	<b>0.00106 lb/ton of urea</b>	
	PM-2.5	<b>0.000375 lb/ton of urea</b>	Loading into Partial Enclosure Telescoping Chute

- 27.1 PM emissions from ship loading operations shall be controlled by hardening the urea granules with UF-85 and product coolers, by minimizing drop heights with a telescoping chute, and by loading into a partially enclosed ship hold at all times.
- 27.2 Compliance with the PM, PM-10, and PM-2.5 limits shall be demonstrated by submitting a certificate of compliance with Condition 27.1, with each operating report required by Condition 57.

28. **Urea Handling Units BACT Limits:** The Permittee shall limit the emissions from EUs 47C through 47D as specified in Table 16:

**Table 16 – Urea Handling BACT Limits for PM, PM-10, and PM-2.5**

EU ID	Pollutant	BACT Limit	Control Method
47C & 47D	PM, PM-10, PM-2.5	<b>0.005 grains/dscf (3 stack test average)</b>	Fully Enclosed Conveyors and Fabric Filters

- 28.1 PM emissions from the urea handling units shall be controlled with fully enclosed conveyors and fabric filters at all times.
- 28.2 Within 180 days from initial startup of EUs 47C and 47D, the Permittee shall conduct a source test in accordance with Section 7 of this permit to demonstrate initial compliance with the PM limits listed in Table 16.
- 28.3 Conduct the test on one of EUs 47C or 47D during normal operating conditions for the units.
- 28.4 Report in the operating report required in Condition 57 the worst case emission rates determined in the source test required by Condition 28.2.
- 28.5 Report as excess emissions and permit deviation as described in Condition 56 if any of the emission rates determined in the source test required by Condition 28.2 exceed the limit in Table 16, or if EUs 47B through 47D operate without the use of fully enclosed conveyors and fabric filters.

29. **Cooling Tower BACT Limits:** The Permittee shall limit the emissions from EU 40 as specified in Table 17:

**Table 17 – Cooling Tower BACT Limits for PM, PM-2.5, and PM-10**

EU ID	Pollutant	BACT Limit	Control Method
40	PM, PM-10, PM-2.5	<b>0.002 % Drift</b>	High Efficiency Drift Eliminators

- 29.1 For EU 40, install, operate, and maintain a high efficiency drift eliminator with a maximum drift of 0.002 percent of circulating water.
- 29.2 For EU 40, within 60 days of startup, the Permittee shall supply the Department with vendor data verifying that a high efficiency drift eliminator with a maximum drift of 0.002 percent of circulating water has been installed.



## **Section 6                      Federal Requirements**

30. **NSPS Subpart A Notification.** For any affected facility<sup>2</sup> or existing facility<sup>3</sup> regulated under NSPS requirements in 40 CFR 60, the Permittee shall furnish the Department and EPA written or electronic notification of:
- 30.1 the date construction or reconstruction of an affected facility commences postmarked no later than 30 days after such date;
  - 30.2 the actual date of initial startup of an affected facility postmarked within 15 days after such date;
  - 30.3 any physical or operational change to an existing facility which may increase the emission rate of any air pollutant to which a standard applies unless that change is specifically exempted under an applicable subpart or in 40 CFR. 60.14(e), postmarked 60 days or as soon as practicable before the change is commenced and shall include:
    - a. information describing the precise nature of the change,
    - b. present and proposed emission control systems,
    - c. productive capacity of the facility before and after the change, and
    - d. the expected completion date of the change.
  - 30.4 any proposed replacement of an existing facility, for which the fixed capital cost of the new components exceeds 50 percent of the fixed capital cost that would be required to construct a comparable entirely new facility, postmarked as soon as practicable, but no less than 60 days before commencement of replacement, and including the following information:
    - a. the name and address of owner or operator,
    - b. the location of the existing facility,
    - c. a brief description of the existing facility and the components that are to be replaced,
    - d. a description of the existing and proposed air pollution control equipment,
    - e. an estimate of the fixed capital cost of the replacements, and of constructing a comparable entirely new facility,
    - f. the estimated life of the existing facility after the replacements, and

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<sup>2</sup> *Affected facility* means, with reference to a stationary source, any apparatus to which a standard applies, as defined in 40 C.F.R. 60.2, effective 7/1/07

<sup>3</sup> *Existing facility* means, with reference to a stationary source, any apparatus of the type for which a standard is promulgated in this part, and the construction or modification of which was commenced before the date of proposal of that standard; or any apparatus which could be altered in such a way as to be of that type, as defined in 40 C.F.R. 60.2, effective 7/1/07.

- g. discussion of any economic or technical limitations the facility may have in complying with the applicable standards of performance after the proposed replacements.
31. **NSPS Subpart A Startup, Shutdown, & Malfunction Requirements.** The Permittee shall maintain records of the occurrence and duration of any start-up, shutdown, or malfunction in the operation of EUs 12, 44, 48, and 49 and any malfunctions of associated air-pollution control equipment.
32. **NSPS Subpart A Excess Emissions and Monitoring Systems Performance Report.** Except as provided in Condition 16, the Permittee shall submit to the Department and to EPA a written "excess emissions and monitoring systems performance report" (EEMSP)<sup>4</sup> any time a limit in Condition 16 has been exceeded as described in this condition. Submit the EEMSP reports with the summary reports to EPA semi-annually postmarked by the 30<sup>th</sup> day following the end of each six month period ending June 30<sup>th</sup> and December 31<sup>st</sup>. Written reports of excess emissions shall include the following information:
- 32.1 The magnitude of excess emissions computed in accordance with Condition 38.3, any conversion factors used, the date and time of commencement and completion of each time period of excess emissions, and the process operating time during the reporting period.
- 32.2 Identification of each period of excess emissions that occurred during startup, shutdown, and malfunction of EU 12; the nature and cause of any malfunction, and the corrective action taken or preventative measures adopted.
- 32.3 The date and time identifying each period during which a Continuous Monitoring System (CMS) was inoperative except for zero and span checks and the nature of any repairs or adjustments.
- 32.4 A statement indicating whether or not any excess emissions occurred or the CMS was inoperative, repaired, or adjusted, at any time during the reporting period.
33. **NSPS Subpart A Summary Report Form.** The Permittee shall submit to the Department and to EPA one "summary report form" in the format shown in Figure 1 of 40 C.F.R. 60.7 the NO<sub>x</sub> continuous monitoring systems required by Conditions 16 and 17. The report shall be submitted semiannually, postmarked by the 30<sup>th</sup> day following the end of each 6-month period ending June 30<sup>th</sup> and December 31<sup>st</sup>:
- 33.1 If the total duration of excess emissions for the reporting period is less than one percent of the total operating time for the reporting period and CMS downtime for the reporting period is less than five percent of the total operating time for the reporting period, submit a summary report form **instead of** the EEMSP report described in Condition 32 is requested, otherwise
- 33.2 Submit a summary report form **and the EEMSP** described in Condition 32.

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<sup>4</sup> The federal EEMSP report is not the same as the State excess emission report required by Condition 56.

34. **NSPS Subpart A Performance (Source) Tests.** The Permittee shall conduct initial source tests according to Section 8 and as indicated in this condition on any affected facility within 60 days after achieving the maximum production rate at which the unit will be operated, but not later than 180 days after initial startup, and at such other times as may be required by EPA, and shall provide the Department and EPA with a written report of the results of the source test. The Permittee shall:
  - 34.1 Conduct source tests and reduce data as set out in 40 CFR 60.8(b), and provide the Department copies of any EPA waivers or approvals of alternative methods.
  - 34.2 Conduct source tests under conditions specified by EPA to be based on representative performance of EUs 44, 48, and 49.
  - 34.3 Notify the Department and EPA at least 30 days in advance of the source test.
  - 34.4 Provide adequate sampling ports, safe sampling platforms, safe access to sampling platforms, and utilities for sampling and testing equipment.
35. **NSPS Subpart A Good Air Pollution Control Practice.** At all times, including periods of startup, shutdown, and malfunction, the Permittee shall, to the extent practicable, maintain and operate EUs 12, 44, 48, and 49 including associated air pollution control equipment in a manner consistent with good air pollution control practice for minimizing emissions. The Administrator will determine whether acceptable operating and maintenance procedures are being used based on information available, which may include, but is not limited to, monitoring results, opacity observations, review of operating and maintenance records, and inspections of EUs 12, 44, 48, and 49.
36. **NSPS Subpart A Credible Evidence.** For the purpose of submitting compliance certifications or establishing whether or not the Permittee has violated or is in violation of the standards set forth in 40 CFR 60 Subparts D and Db, nothing in 40 CFR 60 shall preclude the use, including the exclusive use, of any credible evidence or information, relevant to whether EUs 12, 44, 48, and 49 would have been in compliance with applicable requirements of 40 CFR 60 if the appropriate performance or compliance test or procedure had been performed.
37. **NSPS Subpart A Concealment of Emissions.** The Permittee shall not build, erect, install, or use any article, machine, equipment or process, the use of which conceals an emission which would otherwise constitute a violation of a standard set forth in 40 CFR 60. Such concealment includes, but is not limited to, the use of gaseous diluents to achieve compliance with an opacity standard or with a standard that is based on the concentration of a pollutant in the gases discharged to the atmosphere.
38. **NSPS Subpart A, Monitoring.** For a Continuous Monitoring System (CMS) required under Condition 16, the Permittee shall:
  - 38.1 Install and operate the CMS prior to a performance test conducted under Condition 34, including completion of manufacturer's written requirements or recommendations for installation, operation, and calibration of device.

38.2 Check the zero (or low level value between zero and 20 percent of span value) and span (50 to 100 percent of span value) calibration drifts at least once daily in accordance with 40 C.F.R. 60.13(d).

38.3 Reduce data in accordance with Conditions 16 and 17.

### **Steam Generator Subject to NSPS Subpart D**

39. **NSPS Subpart D Standards for Particulate Matter.** For EU 12, except during periods of startup, shutdown, and malfunction, the Permittee shall not allow any gases discharged into the atmosphere which:
- 39.1 Contain particulate matter in excess of 0.10 lb/MMBtu; and
  - 39.2 Exhibit greater than 20% opacity except for one six-minute period per hour of not more than 27%
  - 39.3 Monitor, record, and report compliance with the opacity and particulate matter limits as described in Conditions 4.3 and 7.2.
40. **NSPS Subpart D Standards for Nitrogen Oxides.** For EU 12, except during periods of startup, shutdown, and malfunction, the Permittee shall not allow any gases discharged into the atmosphere which contain nitrogen oxides, expressed as NO<sub>2</sub>, in excess of 0.20 lb/MMBtu.
- 40.1 The Permittee shall perform a NO<sub>x</sub> source test, in accordance with Section 7, within 180 days of initial startup to demonstrate compliance with the standard in Condition 40. Compliance shall be determined using the procedures contained in 40 CFR 60.46(b) & (d).
  - 40.2 Notify the Department per Condition 56, should any source test reveal an exceedance of the NO<sub>x</sub> emissions limit in Condition 40.

### **Steam Generating Units Subject to NSPS Subpart Db**

41. **NSPS Subpart Db Standards for Nitrogen Oxides.** For EUs 44, 48, and 49, except for periods of startup, shutdown, and malfunction, the Permittee shall not allow any gases discharged into the atmosphere which: contain nitrogen oxides, expressed as NO<sub>2</sub>, in excess of 0.20 lb/MMBtu.
- 41.1 The Permittee shall perform a NO<sub>x</sub> source test, in accordance with Section 7, within 180 days of initial startup to demonstrate compliance with the standard in Condition 41. Compliance shall be determined using the procedures contained in 40 CFR 60.46(b) & (d).
  - 41.2 Notify the Department per Condition 56, should any source test reveal an exceedance of the NO<sub>x</sub> emissions limit in Condition 41.
42. **NESHAP Subpart FFFF.** The Permittee shall comply on a timely basis with any applicable requirements of the Miscellaneous Organic Chemical Manufacturing NESHAP, 40 C.F.R. 63, Subpart FFFF, amended on December 22, 2008.
43. **NESHAP Subpart ZZZZ.** For stationary compression ignition reciprocating internal combustion engines (RICE), comply with the requirements of 40 CFR 63.6590(c).

## **Section 7            General Source Testing and Monitoring Requirements**

44. **Operation Conditions:** Unless otherwise specified by an applicable requirement or test method, the Permittee shall conduct source testing:
- 44.1 At a point or points that characterize the actual discharge into the ambient air; and
  - 44.2 At the maximum rated burning or operating capacity of the source or another rate determined by the Department to characterize the actual discharge into the ambient air.
45. **Reference Test Methods:** The Permittee shall use the following as reference test methods when conducting source testing for compliance with this permit:
- 45.1 Conduct source testing for compliance with requirements adopted by reference in 18 AAC 50.040(a) in accordance with the methods and procedures specified in 40 CFR 60.
  - 45.2 Conduct source testing for compliance with requirements adopted by reference in 18 AAC 50.040(b) in accordance with the methods and procedures specified in 40 CFR 61.
  - 45.3 Conduct source testing for compliance with requirements adopted by reference in 18 AAC 50.040(c) in accordance with the methods and procedures specified in 40 CFR 63.
  - 45.4 Conduct source testing for the reduction in visibility through the exhaust effluent in accordance with Method 9. Visibility source testing is exempt from the requirements listed in Conditions 48 through 51.
  - 45.5 Conduct source testing for emissions of PM, sulfur compounds, CO, lead, VOCs, fluorides, sulfuric acid mist, municipal waste combustor organics, metals, and acid gases in accordance with the methods and procedures specified in 40 CFR 60, Appendix A.
  - 45.6 Conduct source testing for emissions of PM-2.5 in accordance with EPA Method 202 or another method approved by the Department.
  - 45.7 Source testing for emissions of any air pollutant may be determined using an alternative method approved by the Department in accordance with Method 301 in Appendix A to 40 CFR 60.
46. **Excess Air Requirements:** To determine compliance with this permit, standard exhaust gas volumes must only include the volume of gases from the theoretical combustion of fuel, plus the excess air volume normal for the specific source type, corrected to standard conditions (dry gas at 68°F and an absolute pressure of 760 millimeters of mercury).
47. **Additional Source Test:** In addition to any source testing explicitly required by the permit, the Permittee shall conduct source testing as requested by the Department to determine compliance with applicable permit requirements.

48. **Test Deadline Extension.** The Permittee may request an extension to a source test deadline established by the Department. The Permittee may delay a source test beyond the original deadline only if the extension is approved in writing by the Department’s appropriate division director or designee.
49. **Test Plans:** Before conducting any source tests, the Permittee shall submit a plan to the Department. The plan must include the methods and procedures to be used for sampling, testing, and quality assurance and must specify how the source will operate during the test and how the Permittee will document that operation. The Permittee shall submit a complete plan no later than 60 days after receiving a request under Condition 47 and at least 30 days before the scheduled date of any test unless the Department agrees in writing to some other time period. Retesting may be done without resubmitting the plan.
50. **Test Notification:** At least 10 days before conducting a source test, the Permittee shall give the Department written notice of the date and time the source test will begin.
51. **Test Reports.** Within 60 days after completing a source test, the Permittee shall submit two copies of the results in the format set out in the Source Test Report Outline, adopted by reference in 18 AAC 50.030. The Permittee shall certify the results in the manner set out in Condition 58. If requested in writing by the Department, the Permittee must provide preliminary results in a shorter period of time specified by the Department.
52. **NO<sub>x</sub> Testing Requirements:** When conducting a NO<sub>x</sub> source test, the Permittee shall report both the NO<sub>x</sub> concentration (measured as NO<sub>2</sub>) and the actual NO<sub>2</sub> concentration.

## **Section 8            General Recordkeeping, Reporting, and Compliance Requirements**

53. **Good Air Pollution Control Practice:** The Permittee shall do the following for the boilers and heaters (EUs 44 and 48 through 54) and flares (EUs 11, 22, and 23).
- 53.1 perform regular maintenance according to the manufacturer’s recommendations or the operator’s operations and maintenance procedures;
  - 53.2 keep records of any maintenance that would have a significant effect on emissions; the records may be kept in electronic format; and
  - 53.3 keep a copy of either the manufacturer’s or the operator’s maintenance procedures.
54. **Air Pollution Prohibited:** No person may permit any emissions injurious to human health, welfare, animal life, plant life, or property, which would unreasonably interfere with the enjoyment of life or property.
55. **Monitoring, Recordkeeping, and Reporting (MR&Rs) for Air Pollution Prohibited:**
- 55.1 If emissions present a potential threat to human health or safety, the Permittee shall report such emissions according to Condition 56.
  - 55.2 As soon as practicable, after becoming aware of a complaint that is attributable to emissions from the facility, the Permittee shall investigate the complaint to identify emissions that the Permittee believes have caused or are causing a violation of Condition 54.
  - 55.3 The Permittee shall initiate and complete corrective action necessary to eliminate any violation identified by a complaint or investigation as soon as practicable if
    - a. after an investigation because of a complaint or other reason, the Permittee believes that emissions from the facility have caused or are causing a violation of Condition 54; or
    - b. the Department notifies the Permittee that it has found a violation of Condition 54.
  - 55.4 The Permittee shall keep records of the following:
    - a. the date, time, and nature of all emissions complaints received;
    - b. the name of the person or persons that complained, if known;
    - c. a summary of any investigation, including reasons the Permittee does or does not believe the emissions have caused a violation of Condition 54; and
    - d. any corrective actions taken or planned for complaints attributable to emissions from the facility.

- 55.5 With each operating report under Condition 57, the Permittee shall include a brief summary report which must include the following:
- a. the number of complaints received;
  - b. the number of times the Permittee or the Department found corrective action necessary;
  - c. the number of times action was taken on a complaint within 24 hours; and
  - d. the status of corrective actions the Permittee or Department found necessary that were not taken within 24 hours.
- 55.6 The Permittee shall notify the Department of a complaint that is attributable to emissions from the facility within 24 hours after receiving the complaint, unless the Permittee has initiated corrective action within 24 hours of receiving the complaint.

**56. Excess Emissions and Permit Deviation Reports**

- 56.1 Except as provided in Condition 54, the Permittee shall report all emissions or operations that exceed or deviate from the requirements of this permit as follows:
- a. in accordance with 18 AAC 50.240(c), as soon as possible after the event commenced or is discovered, report:
    - (i) emissions that present a potential threat to human health or safety; and
    - (ii) excess emissions that the Permittee believes to be unavoidable.
  - b. in accordance with 18 AAC 50.235(a), within two working days after the event commenced or was discovered, report an unavoidable emergency, malfunction, or non-routine repair that causes emissions in excess of a technology based emission standard;
  - c. report all other excess emissions and permit deviations:
    - (i) within 30 days after the end of the month in which the emissions or deviation occurs, except as provided in Condition 56.1c(ii); and
    - (ii) if a continuous or recurring excess emissions is not corrected within 48 hours of discovery, within 72 hours of discovery unless the Department provides written permission to report under Condition 56.1c(i).
- 56.2 When reporting excess emissions or permit deviations the Permittee must report; using either the Department’s on-line form, which can be found at <http://www.dec.state.ak.us/air/ap/site.htm> or <https://myalaska.state.ak.us/deca/air/airtoolsweb/>, or if the Permittee prefers, the form contained in Attachment 2 of this permit. The Permittee must provide all information called for by the form that is used.



- 56.3 If requested by the Department, the Permittee shall provide a more detailed written report as requested to follow up an excess emissions report.
57. **Operating Reports:** The Permittee shall submit to the Department an original and one copy of an operating report by August 1st for the period January 1st to June 30th of the current year and by February 1st for the period July 1st to December 31st of the previous year.
- 57.1 The operating report must include all information required to be in operating reports by other conditions of this permit. The Permittee may upon consultation with the Compliance Technician regarding software compatibility, provide electronic copies of data reports, emission source test reports, or other records under a cover letter certified in accordance with Departmental submission requirements.
- 57.2 If excess emissions or permit deviations that occurred during the reporting period are not reported under Condition 57.1, either
- a. The Permittee shall identify
    - (i) the date of the deviation;
    - (ii) the equipment involved;
    - (iii) the permit condition affected;
    - (iv) a description of the excess emissions or permit deviation; and
    - (v) any corrective action or preventive measures taken and the date of such actions, or
  - b. When excess emissions or permit deviations have already been reported under Condition 56 the Permittee shall cite the date or dates of those reports.
58. **Certification.** The Permittee shall certify any permit application, report, affirmation, or other compliance certification submitted to the Department and required under the permit by including the signature of a responsible official for the permitted stationary source following the statement: “Based on information and belief formed after reasonable inquiry, I certify that the statements and information in and attached to this document are true, accurate, and complete.” Excess emissions reports must be certified either upon submittal or with an operating report required for the same reporting period. All other reports and other documents must be certified upon submittal.
59. **Submittals.** Unless otherwise directed by the Department or this permit, the Permittee shall send two copies of reports, compliance certifications, and other submittals required by this permit to ADEC, Air Permits Program, 610 University Ave., Fairbanks, AK 99709-3643, ATTN: Compliance Technician. The Permittee may, upon consultation with the Compliance Technician regarding software compatibility, provide electronic copies of data reports, emission source test reports, or other records under a cover letter certified in accordance with Condition 58.

## **Section 9            Standard Permit Conditions**

60. **Compliance Requirements:** Compliance with permit terms and conditions is considered to be in compliance with those requirements that are
  - 60.1 included and specifically identified in the permit; or
  - 60.2 determined in writing in the permit to be inapplicable.
61. **Grounds for Action:** The Permittee must comply with each permit term and condition. Noncompliance with a permit term or condition constitutes a violation of AS 46.14, 18 AAC 50, and the Clean Air Act (except for those terms or conditions designated in the permit as not federally enforceable), and is grounds for
  - 61.1 an enforcement action;
  - 61.2 permit termination, revocation and reissuance, or modification in accordance with AS 46.14.280; or
  - 61.3 denial of an operating permit application.
62. **Non-Defense for Enforcement Action:** It is not a defense in an enforcement action to claim that it would have been necessary to halt or reduce the permitted activity in order to maintain compliance with a permit term or condition.
63. **Access:** The Permittee shall allow the Department or an inspector authorized by the Department upon presentation of credentials and at reasonable times with the consent of the owner or operator to:
  - 63.1 enter upon the premises where an emissions unit subject to this permit is located or where records required by the permit are kept;
  - 63.2 have access to and copy any records required by this permit;
  - 63.3 inspect any stationary source, equipment, practices, or operations regulated by or referenced in the permit; and
  - 63.4 sample or monitor substances or parameters to assure compliance with the permit or other applicable requirements.
64. **Independence of Permit Terms:** Each permit term and condition is independent of the permit as a whole and remains valid regardless of a challenge to any other part of the permit.
65. **Changes in Permit:** The permit may be modified, reopened, revoked and reissued, or terminated for cause. A request by the Permittee for modification, revocation and reissuance, or termination or a notification of planned changes or anticipated noncompliance does not stay any permit condition.
66. **Property Rights:** The permit does not convey any property rights of any sort, nor any exclusive privilege.
67. **Information Requests:** The Permittee shall furnish to the Department, within a reasonable time, any information that the Department requests in writing to determine whether cause exists to modify, revoke and reissue, or terminate the permit or to determine compliance with the permit. Upon request, the Permittee shall furnish to the Department copies of records required to be kept by the permit. The Department may require the Permittee to furnish copies of those records directly to the federal administrator.

**Section 10**      **Permit Documentation**

*Date*

*Documentation Details*

October 24, 2013	Department receives original application
October 29, 2013	Department receives addenda to the application
January 29, 2014	Department receives addenda to the application

## Attachment 1 – Visible Emissions Form

### VISIBLE EMISSION OBSERVATION FORM

This form is designed to be used in conjunction with EPA Method 9, “Visual Determination of the Opacity of Emissions from Stationary Sources.” Temporal changes in emission color, plume water droplet content, background color, sky conditions, observer position, etc. should be noted in the comments section adjacent to each minute of readings. Any information not dealt with elsewhere on the form should be noted under additional information. Following are brief descriptions of the type of information that needs to be entered on the form: for a more detailed discussion of each part of the form, refer to “Instructions for Use of Visible Emission Observation Form.”

- Stationary Source Name: full company name, parent company or division or subsidiary information, if necessary.
- Address: street (not mailing or home office) address of facility where VE observation is being made.
- Phone (Key Contact): number for appropriate contact.
- Stationary Source ID Number: number from NEDS, agency file, etc.
- Process Equipment, Operating Mode: brief description of process equipment (include type of facility) and operating rate, % capacity, and/or mode (*e.g.*, charging, tapping, shutdown).
- Control Equipment, Operating Mode: specify type of control device(s) and % utilization, control efficiency.
- Describe Emission Point: for identification purposes, stack or emission point appearance, location, and geometry; and whether emissions are confined (have a specifically designed outlet) or unconfined (fugitive).
- Height Above Ground Level: stack or emission point height relative to ground level; can use engineering drawings, Abney level, or clinometer.
- Height Relative to Observer: indicate height of emission point relative to the observation point.
- Distance from Observer: distance to emission point; can use rangefinder or map.
- Direction from Observer: direction plume is traveling from observer.
- Describe Emissions and Color: include physical characteristics, plume behavior (*e.g.*, looping, lacy, condensing, fumigating, secondary particle formation, distance plume visible, etc.), and color of emissions (gray, brown, white, red, black, etc.). Note color changes in comments section.
- Visible Water Vapor Present?: check “yes” if visible water vapor is present.
- If Present, is Plume...: check “attached” if water droplet plume forms prior to exiting stack, and “detached” if water droplet plume forms after exiting stack.
- Point in Plume at Which Opacity was Determined: describe physical location in plume where readings were made (*e.g.*, 1 ft above stack exit or 10 ft. after dissipation of water plume).
- Describe Plume Background: object plume is read against, include texture and atmospheric conditions (*e.g.*, hazy).
- Background Color: sky blue, gray-white, new leaf green, etc.
- Sky Conditions: indicate cloud cover by percentage or by description (clear, scattered, broken, overcast).
- Wind Speed: record wind speed; can use Beaufort wind scale or hand-held anemometer to estimate.
- Wind Direction From: direction from which wind is blowing; can use compass to estimate to eight points.
- Ambient Temperature: in degrees Fahrenheit or Celsius.
  - Wet Bulb Temperature: can be measured using a sling psychrometer
  - RH Percent: relative humidity measured using a sling psychrometer; use local US Weather Bureau measurements only if nearby.
- Source Layout Sketch: include wind direction, sun position, associated stacks, roads, and other landmarks to fully identify location of emission point and observer position.
  - Draw North Arrow: to determine, point line of sight in direction of emission point, place compass beside circle, and draw in arrow parallel to compass needle.
  - Sun’s Location: point line of sight in direction of emission point, move pen upright along sun location line, mark location of sun when pen’s shadow crosses the observer’s position.
- Observation Date: date observations conducted.
- Start Time, End Time: beginning and end times of observation period (*e.g.*, 1635 or 4:35 p.m.).
- Data Set: percent opacity to nearest 5%; enter from left to right starting in left column. Use a second (third, etc.) form, if readings continue beyond 30 minutes. Use dash (-) for readings not made; explain in adjacent comments section.
  - Comments: note changing observation conditions, plume characteristics, and/or reasons for missed readings.
  - Range of Opacity: note highest and lowest opacity number.
- Observer’s Name: print in full.
  - Observer’s Signature, Date: sign and date after performing VE observation.
- Organization: observer’s employer.
  - Certified By, Date: name of “smoke school” certifying observer and date of most recent certification.

ALASKA DEPARTMENT OF ENVIRONMENTAL CONSERVATION AIR PERMITS PROGRAM - VISIBLE EMISSIONS OBSERVATION FORM						
Stationary Source Name						Page No. _____
Type of Emission Unit		Observation Date		Start Time		End Time
Emission Unit Location		Sec	0	15	30	45
City		Mn	Comments			
State		1				
Zip		2				
Phone # (Key Contact)		Stationary Source ID Number		3		
Process Equipment		Operating Mode		4		
Control Equipment		Operating Mode		5		
Describe Emission Point/Location		6				
Height above ground level	Height relative to observer	Inclinometer Reading				
7						
Distance From Observer		Direction From Observer		8		
Start	End	Start	End			
Describe Emissions & Color		9				
Start	End					
Visible Water Vapor Present? If yes, determine approximate distance from the stack exit to where the plume was read		10				
No	Yes					
Point in Plume at Which Opacity Was Determined		11				
Describe Plume Background		Background Color				
Start	End	Start	End	12		
Sky Conditions:		14				
Start	End					
Wind Speed		Wind Direction From				
Start	End	Start	End	15		
Ambient Temperature		Wet Bulb Temp		RH percent		
16						
SOURCE LAYOUT SKETCH: 1 Stack or Point Being Read 2 Wind Direction From		17				
3 Observer Location 4 Sun Location 5 North Arrow 6 Other Stacks		18				
19						
20						
21						
22						
23						
24						
25						
26						
27						
28						
29						
30						
Range of Opacity						
Minimum		Maximum				
I have received a copy of these opacity observations		Print Observer's Name				
Print Name:		Observer's Signature			Date	
Signature:		Observer's Affiliation:				
Title		Date		Certifying Organization		
Certified By:		Date				
<b>Data Reduction:</b>						
Duration of Observation Period (minutes):			Duration Required by Permit (minutes):			
Number of Observations:			Highest Six - Minute Average Opacity (%):			
Number of Observations exceeding 20%:			Highest 18-Consecutive -Minute Average Opacity (%)(engines and turbines only)			
In compliance with six-minute opacity limit? (Yes or No)						
<b>Average Opacity Summary:</b>						
Set Number	Time		Opacity		Comments	
	Start	End	Sum	Average		

## Attachment 2 - Material Balance Calculation

If the sulfur content of a fuel shipment is greater than 0.75 percent by weight, calculate the three-hour exhaust concentration of SO<sub>2</sub> using the following equations:

$$\begin{aligned}
 \text{A.} &= 31,200 \times [\text{wt}\% \mathbf{S}_{\text{fuel}}] = 31,200 \times \underline{\hspace{2cm}} = \underline{\hspace{2cm}} \\
 \text{B.} &= 0.148 \times [\text{wt}\% \mathbf{S}_{\text{fuel}}] = 0.148 \times \underline{\hspace{2cm}} = \underline{\hspace{2cm}} \\
 \text{C.} &= 0.396 \times [\text{wt}\% \mathbf{C}_{\text{fuel}}] = 0.396 \times \underline{\hspace{2cm}} = \underline{\hspace{2cm}} \\
 \text{D.} &= 0.933 \times [\text{wt}\% \mathbf{H}_{\text{fuel}}] = 0.933 \times \underline{\hspace{2cm}} = \underline{\hspace{2cm}} \\
 \text{E.} &= \text{B} + \text{C} + \text{D} = \underline{\hspace{2cm}} + \underline{\hspace{2cm}} + \underline{\hspace{2cm}} = \underline{\hspace{2cm}} \\
 \text{F.} &= 20.9 - [\text{vol}\% \mathbf{dryO}_2, \text{exhaust}] = 20.9 - \underline{\hspace{2cm}} = \underline{\hspace{2cm}} \\
 \text{G.} &= [\text{vol}\% \mathbf{dryO}_2, \text{exhaust}] \div \text{F} = \underline{\hspace{2cm}} \div \underline{\hspace{2cm}} = \underline{\hspace{2cm}} \\
 \text{H.} &= 1 + \text{G} = 1 + \underline{\hspace{2cm}} = \underline{\hspace{2cm}} \\
 \text{I.} &= \text{E} \times \text{H} = \underline{\hspace{2cm}} \times \underline{\hspace{2cm}} = \underline{\hspace{2cm}} \\
 \text{SO}_2 \text{ concentration} &= \text{A} \div \text{I} = \underline{\hspace{2cm}} \div \underline{\hspace{2cm}} = \underline{\hspace{2cm}} \text{ ppm}
 \end{aligned}$$

The **wt%*S*<sub>fuel</sub>**, **wt%*C*<sub>fuel</sub>**, and **wt%*H*<sub>fuel</sub>** are equal to the weight percents of sulfur, carbon, and hydrogen in the fuel. These percentages should total 100%.

The fuel weight percent of sulfur (**wt%*S*<sub>fuel</sub>**) is obtained pursuant to Conditions 13.2 and/or 13.3. The fuel weight percents of carbon and hydrogen are obtained from the fuel refiner.

The volume percent of oxygen in the exhaust (**vol%*dryO*<sub>2, exhaust</sub>**) is obtained from oxygen meters, manufacturer's data, or from the most recent analysis under 40 C.F.R. 60, Appendix A-2, Method 3, adopted by reference in 18 AAC 50.040(a), at the same engine load used in the calculation.

Enter all of the data in percentages without dividing the percentages by 100. For example, if **wt%*S*<sub>fuel</sub>** = 1.0%, then enter 1.0 into the equations not 0.01 and if **vol%*dryO*<sub>2, exhaust</sub>** = 3.00%, then enter 3.00, not 0.03.

[18 AAC 50.346(c)]

**Attachment 3 - ADEC Notification Form<sup>5</sup>**

Agrium, U.S. Inc. – Kenai Nitrogen Operations  
**Stationary Source Name**  
Agrium U.S. Inc.  
**Company Name**

AQ0083CPT06  
**Air Quality Permit No.**  
**Date**

**When did you discover the Excess Emissions/Permit Deviation?**

Date: \_\_\_\_\_ / \_\_\_\_\_ / \_\_\_\_\_ Time: \_\_\_\_\_ : / \_\_\_\_\_

**When did the event/deviation occur?**

Begin Date: \_\_\_\_\_ / \_\_\_\_\_ / \_\_\_\_\_ Time: \_\_\_\_\_ : \_\_\_\_\_ (Use 24-hr clock.)  
End Date \_\_\_\_\_ / \_\_\_\_\_ / \_\_\_\_\_ Time: \_\_\_\_\_ : \_\_\_\_\_ (Use 24-hr clock.)

**What was the duration of the event/deviation?** \_\_\_\_\_ : \_\_\_\_\_ (hrs:min) or \_\_\_\_\_ days  
(total # of hrs, min, or days, if intermittent then include only the duration of the actual emissions/deviation)

**Reason for Notification:** (please check only 1 box and go to the corresponding section)

- Excess Emissions – Complete Section 1 and Certify
- Deviation from Permit Condition – Complete Section 2 and Certify
- Deviations from COBC, CO, or Settlement Agreement – Complete Section 2 and Certify

**Section 1. Excess Emissions**

(a) Was the exceedance:  Intermittent or  Continuous

(b) Cause of Event (Check one that applies):

- Start Up/Shut Down  Natural Cause (weather/earthquake/flood)
- Control Equipment Failure  Schedule Maintenance/Equipment Adjustment
- Bad Fuel/Coal/Gas  Upset Condition  Other \_\_\_\_\_

(c) Description

Describe briefly, what happened and the cause. Include the parameters/operating conditions exceeded, limits, monitoring data and exceedance.

(d) Emissions Units Involved:

Identify the emission unit involved in the event, using the same identification number and name as in the permit. Identify each emission standard potentially exceeded during the event and the exceedance.

EU ID	EU Name	Permit Condition Exceeded/Limit/Potential Exceedance

<sup>5</sup> Revised as of August 20, 2008

(e) Type of Incident (please check only one):

- Opacity \_\_\_\_\_ %     
  Venting \_\_\_\_\_ gas/scf     
  Control Equipment Down  
 Fugitive Emissions     
  Emission Limit Exceeded     
  Other \_\_\_\_\_  
 Marine Vessel Opacity     
  Flaring \_\_\_\_\_

(f) Unavoidable Emissions:

- Do you intend to assert that these excess emissions were unavoidable?       Yes       No  
 Do you intend to assert the affirmative defense of 18 AAC 50.235?       Yes       No

*Certify Report (Go to end of form.)*

**Section 2. Permit Deviations**

(a) Permit Deviation Type (check only one box, corresponding with the section in the permit):

- Emission Unit-Specific       Generally Applicable Requirements  
 Failure to Monitor/Report       Reporting/Monitoring for Diesel Engines  
 General Source Test/Monitoring Requirements       Recordkeeping Failure  
 Recordkeeping/Reporting/Compliance Certification       Insignificant Emission Unit  
 Standard Conditions Not Included in the Permit       Stationary Source Wide  
 Other Section: \_\_\_\_\_ (Title of section and section number of your permit).

(b) Emission Unit Involved:

Identify the emission unit involved in the event, using the same identification number and name as in the permit. List the corresponding permit conditions and the deviation.

EU ID	EU Name	Permit Condition/Potential Deviation

(c) Description of Potential Deviation:

Describe briefly what happened and the cause. Include the parameters/operating conditions and the potential deviation.

(d) Corrective Actions:

Describe actions taken to correct the deviation or potential deviation and to prevent future recurrence.



**Certification:**

Based on information and belief formed after reasonable inquiry, I certify that the statements and information in and attached to this document are true, accurate, and complete.

Printed Name: \_\_\_\_\_ Title: \_\_\_\_\_ Date: \_\_\_\_\_  
Signature: \_\_\_\_\_ Phone Number: \_\_\_\_\_

**NOTE:** *This document must be certified in accordance with 18 AAC 50.345(j)*

**To Submit this Report:**

Fax to: 907-451-2187

Or

Email to: [DEC.AQ.Airreports@alaska.gov](mailto:DEC.AQ.Airreports@alaska.gov)

*If faxed or emailed, the report must be certified within the Operating Report required for the same reporting period per Condition 57.*

Or

Mail to:           ADEC  
                      Air Permits Program  
                      610 University Avenue  
                      Fairbanks, AK 99709-3643

Or

Phone Notification: 907-451-5173

*Phone notifications require a written follow-up report.*

Or

Submission of information contained in this report can be made electronically at the following website:

<https://myalaska.state.ak.us/dec/air/airtoolsweb/>

*If submitted online, report must be submitted by an authorized E-Signer for the stationary source.*

[18 AAC 50.346(b)(3)]