# DEPARTMENT OF ENVIRONMENTAL CONSERVATION

# AIR QUALITY OPERATING/CONSTRUCTION PERMIT

Permit No. 182TVP01
Application No. 182
Revision 1: February 17, 2004

Issue Date: October 20, 2003
Expiration Date: November 19, 2008

The Department of Environmental Conservation, under the authority of AS 46.14 and 18 AAC 50, issues an operating/construction permit to the Permittee, **BP Exploration (Alaska) Inc.**, for the operation of the **Gathering Center #1** (GC#1) stationary source, defined by this permit as the surface structures and their associated permanent emission units located on the GC#1 production pad and Prudhoe Bay Unit well pads D, E, F, G, Y, and P. Temporary emission units (sources) and facilities (e.g., drill rigs and associated activities and equipment) that periodically operate at the well pads are not governed by this permit.

This permit satisfies the obligation of the owner and operator to obtain an operating/construction permit as set out in AS 46.14.130(a) and (b).



As set out in AS 46.14.120(c), the Permittee shall comply with the terms and conditions of this operating/construction permit.

All facility-specific terms and conditions of Air Quality Control Permit-to-Operate No. 9673-AA003, as amended through January 16, 1997, have been incorporated into this operating/construction permit. This permit, in accordance with the provisions of 18 AAC 50.305(a)(3), revises or rescinds specific terms and conditions of Air Quality Control Permit-to-Operate 9673-AA003.

This Operating/Construction Permit becomes effective November 20, 2003.

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John F. Kuterbach, Manager

Air Permits Program

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## List of Abbreviations Used in this Permit

AAC .....................Alaska Administrative Code
ADEC...................Alaska Department of Environmental Conservation
AS ........................Alaska Statutes
ASTM ..................American Society for Testing and Materials
BACT...................Best Available Control Technology
C.F.R. ...................Code of Federal Regulations
CO........................Carbon Monoxide
dscf.......................Dry standard cubic foot
EPA......................US Environmental Protection Agency
gr./dscf ................grain per dry standard cubic foot (1 pound = 7000 grains)
GPH......................gallons per hour
HAPs or HACs.....Hazardous Air Pollutants or Hazardous Air Contaminants [*HAPs* or *HACs* as contained in AS 46.14.990(14)]
ID .........................Source Identification Number
kPa........................kiloPascals
LAER ...................Lowest Achievable Emission Rate
MACT .................Maximum Achievable Control Technology as contained in 40 C.F.R. 63.
MR&R.................Monitoring, Recordkeeping, and Reporting
MMBtu/hr ...........million British Thermal Units per hour
NESHAPs ...........Federal National Emission Standards for Hazardous Air Pollutants [*NESHAPS* as contained in 40 C.F.R. 61]
$NO_X$....................Nitrogen Oxides
NSPS ....................Federal New Source Performance Standards [*NSPS* as contained in 40 C.F.R. 60]
O & M .................Operation and Maintenance
$O_2$ .........................Oxygen
PM-10 ..................Particulate Matter less than or equal to a nominal ten microns in diameter
ppm ......................Parts per million
ppmv ....................Parts per million by volume
ppmvd ..................Parts per million by volume on a dry basis
psia .......................Pounds per Square Inch (at atmospheric pressure)
PSD ......................Prevention of Significant Deterioration
PTE ......................Potential to Emit
SIC. ......................Standard Industrial Classification
$SO_2$ .......................Sulfur dioxide
TPH ......................Tons per hour
TPY ......................Tons per year
VOC .....................volatile organic compound [*VOC* as defined in 18 AAC 50.990(103)]
VOL .....................volatile organic liquid [*VOL* as defined in 40 C.F.R. 60.111b, Subpart Kb]
wt% ......................weight percent

## *Section 1. Identification*

### Names and Addresses

| | |
|---|---|
| Permittee: | BP Exploration (Alaska) Inc<br>900 East Benson Blvd. (zip 99508)<br>P.O. Box 196612<br>Anchorage, AK 99519-6612 |
| Facility Name: | **Gathering Center #1** |
| Location: | Prudhoe Bay, Alaska, Section 13, Township 11N, Range 13E, Umiat Meridian |
| Owners: | BP Exploration (Alaska) Inc.<br>900 E. Benson Blvd (Zip 99508)<br>P.O. Box 196612<br>Anchorage, AK 99519-6612<br><br>ChevronTexaco<br>11111S. Wilcrest (zip 77099)<br>P.O. Box 36366<br>Houston, TX 77236<br><br>ConocoPhillips Alaska, Inc.<br>700 G Street (Zip 99501)<br>P.O. Box 100360<br>Anchorage, AK 99510-0360<br><br>Forest Oil Corporation<br>310 K Street, Suite 700<br>Anchorage, AK 99501<br><br>ExxonMobil Alaska Prod. Inc.<br>3301 C Street, Suite 400 (Zip 99503)<br>P.O. Box 196601<br>Anchorage, AK 99511-6601 |
| Operator: | Same as Permittee |
| Permittee's Responsible Official | Craig L. Wiggs, GPB Operations Manager |
| Designated Agent: | CT Corporation<br>801 W 10th St, Suite 300<br>Juneau, AK 99801 |
| Facility and Building Contact: | Gary Herring/ Jerome Hines<br>(907) 659-4087 |
| Fee Contact: | James A. Pfeiffer, Air Specialist<br>(907) 564-4549 |



### Facility Process Description

SIC Code of the Facility: 1311 Crude Petroleum and Natural Gas
NAICS Code of the Facility: 211111

[18 AAC 50.350(b)(1), 1/18/97]

## *Section 2. General Emission Information*

[18 AAC 50.350(b)(1), 1/18/97]

### Emissions of Regulated Air Contaminants, as provided in the Permittee's application:

Nitrogen Oxides, Carbon Monoxide, Sulfur Dioxide, Particulate Matter (PM-10), Volatile Organic Compounds, and various Hazardous Air Pollutants (HAPs)

### Facility Classifications:

(1) 18 AAC 50.300(b)(2). Gathering Center #1 is a facility containing fuel burning equipment with a rated capacity of 100 million Btu per hour or more.

(2) 18 AAC 50.300(c)(1). Gathering Center #1 is a facility that emits or has the potential to emit 250 TPY or more of a regulated air contaminant in an area designated attainment or unclassifiable for that air contaminant under 18 AAC 50.015

### Operating Permit Classifications:

(1) 18 AAC 50.325(b)(1). Gathering Center #1 is a facility that emits or has the potential to emit 100 TPY or more of a regulated air contaminant.

(2) 18 AAC 50.325(b)(3). Gathering Center #1 is a facility containing a source subject to the standards adopted by reference in 18 AAC 50.040(a)(1), 18 AAC 50.040(a)(2)(D), 18 AAC 50.040(a)(2)(L), and 18 AAC 50.040(a)(2)(V).

(3) 18 AAC 50.325(c). Gathering Center #1 is a facility described in 18 AAC 50.300(b)-(e) therefore, it is within the category of facilities subject to AS 46.14.130(b)(4).

## *Section 3. Source Inventory and Description*

[18 AAC 50.350(d)(2), 1/18/97]

Sources listed in Table 1 have specific monitoring, record keeping, or reporting conditions in this permit. Source descriptions and ratings are given for identification purposes only. There are no permanent significant emission units (sources) at the PBU well pads associated with the GC#1 stationary source (facility).

**Table 1 - Source Inventory**

| ID | Tag Number | Source Description | Rating/size | Commenced Construction, Startup, or Modification/ Reconstruction Date[1] |
|---|---|---|---|---|
| **Group I – Gas-Fired Turbines at the Production Pad** | | | | |
| 1 | GTRB-01-7000 | GE MS5352B Compressor | 35,000 hp ISO | Commenced Construction prior to December 1981 |
| 2 | GTRB-01-7001 | GE MS5352B Compressor | 35,000 hp ISO | Commenced Construction prior to December 1981 |
| 3 | GTRB-51-8002A | Source removed from service | | |
| 4 | GTRB-51-8002B | Source removed from service | | |
| 5 | GTRB-51-3204 | Cooper RB211-24C Compressor | 33,300 hp ISO | Commenced Construction prior to December 1981 |
| 6 | GTRB-51-3304 | Cooper RB211-24C Compressor | 33,300 hp ISO | Commenced Construction prior to June 1981 |
| 7 | GTRB-01-7704A | Sulzer S3 Pump | 7,910 hp ISO | Commenced Construction prior to June 1981 |
| 8 | GTRB-01-7704B | Sulzer S3 Pump | 7,910 hp ISO | Commenced Construction prior to June 1981 |
| 9 | GTRB-51-8001A | Ruston TA 2500 Pump | 2,500 hp ISO | Commenced Construction prior to June 1981 |
| 10 | GTRB-51-8001B | Ruston TA 2500 Pump | 2,500 hp ISO | Commenced Construction prior to June 1981 |
| 11 | GTRB-51-8001C | Ruston TA 2500 Pump | 2,500 hp ISO | Commenced Construction prior to June 1981 |
| **Group II – Gas-Fired Heaters at the Production Pad** | | | | |
| 12 | H-51-8002A | Econotherm John Zink Burners | 320 MMBtu/hr[2] [302.5 MMBtu/hr (fresh air firing mode; heat input, LHV)] | Constructed Prior to 1984 |
| 13 | H-51-8002B | Econotherm John Zink Burners | 320 MMBtu/hr[2] [302.5 MMBtu/hr (fresh air firing mode; heat input, LHV)] | Constructed Prior to 1984 |
| 14 | B-01-0001 | Cleaver Brooks EG Boiler (Dual fuel) | 20.9 MMBtu/hr [heat input, LHV] | Commenced construction prior to August 1978 |
| 15 | B-01-0002 | Cleaver Brooks EG Boiler (Dual fuel) | 20.9 MMBtu/hr [heat input, LHV] | |
| 16 | B-01-0003 | Cleaver Brooks EG Heater (Dual fuel) | 20.9 MMBtu/hr [heat input, LHV] | |
| 17 | B-01-0004 | Cleaver Brooks EG Heater (Dual fuel) | 20.9 MMBtu/hr [heat input, LHV] | |
| 18 | B-01-0067 | BS&B TEG Reboiler | 8.2 MMBtu/hr [heat input, LHV] | Modified October 1990 |
| 19 | B-01-0068 | BS&B TEG Reboiler | 8.2 MMBtu/hr [heat input, LHV] | |
| 20 | B-01-9920 | Smith TEG Reboiler | 16.2 MMBtu/hr [heat input, LHV] | Installed 1993 |

| ID | Tag Number | Source Description | Rating/size | Commenced Construction, Startup, or Modification/ Reconstruction Date[1] |
|---|---|---|---|---|
| **Group III – Liquid Fuel-Fired Equipment at the Production Pad** | | | | |
| 21 | GNED-01-0001 | Caterpillar D398 Emergency Generator | 550 kW (737.6 hp) | After 1977 |
| 22 | GNED-01-0002 | Caterpillar D398 Emergency Generator | 550 kW (737.6 hp) | After 1977 |
| 23 | GNED-01-0011 | Detroit Diesel Emergency Generator | 550 kW (737.6 hp) | After 1977 |
| 24 | PED-01-7004 | Detroit Diesel Emergency Firewater Pump | 280 hp | After 1977 |
| 25 | GNED-01-8004 | Detroit Diesel Emergency Generator | 2,685 kW (3600 hp) | Installed After 1980 |
| 26 | GTRB-51-8001 | Alison 501KB Emergency Turbine Generator | 5,000 hp (3730 kW) | Installed After 1980 |
| **Group IV – Flares at the Production Pad** | | | | |
| 27 | FL-01-0001 | KALDAIR LP/HP Vertical Emergency Flares | 1.95 MMscf/day (pilot & purge gas) | Prior to November 1978 |
| 28 | FL-01-0002 | | | |
| 29 | FL-01-0003 | KALDAIR LP/HP Vertical Emergency Flares | | Prior to November 1978 |
| 30 | FL-01-0004 | | | |
| 31 | FL-01-0005 | KALDAIR HP Vertical Emergency Flares | | Prior to November 1978 |
| 32 | FL-01-0006 | | | |
| 33 | FL-01-0007 | | | |
| 34 | FL-01-7001 | BP Design Horizontal Burn Pit Emergency Flare | | After 1980 |
| 35 | FL-01-7002 | | | |
| 36 | FL-01-9902 | GBA/ Corona HP Second Stage Emergency Flare | | 1993 |
| 37 | FL-01-9907 | KALDAIR HP First Stage Emergency Flare | | 1993 |
| **Group V – Fixed Roof Storage Tanks at the Production Pad Greater Than 10,000 Gallon Capacity** | | | | |
| 38 | T-01-7703 | Skim Oil/Oily Water Storage Tank | 493,500 gallons | Constructed 1982 |
| 39 | T-51-8008 | Arctic #1 Diesel Storage Tank | 252,000 gallons | Constructed 1982 |
| **Well Pad D** | | | | |
| **Well Pad E** | | | | |
| **Well Pad F** | | | | |
| **Well Pad G** | | | | |
| **Well Pad Y** | | | | |
| **Well Pad P** | | | | |

1 - Date construction commenced (if known) or the startup date of the unit. If a unit has been modified as defined by AS 46.14.990, then the most recent modification date is provided.
2 – The firing rate of Source ID(s) 12 and 13 is limited to 181.5 MMBtu/hr. See condition 8.

## *Section 4. Emission Fees*

**1. Assessable Emissions.** The Permittee shall pay to the Department an annual emission fee based on the facility'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(b). The Department will assess fees per ton of each air contaminant that the facility 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

1.1 the facility's assessable potential to emit of 6,485 TPY; or

1.2 the facility's projected annual rate of emissions that will occur from July 1 to the following June 30, 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.

[18 AAC 50.346(a)(1), 5/3/02 and 18 AAC 50.350(c) & 50.400 – 50.420, 1/18/97]



**2. Assessable Emission Estimates.** Emission fees will be assessed as follows:

2.1 no later than March 31 of each year, the Permittee may submit an estimate of the facility's assessable emissions to ADEC, Air Permits Program, ATTN: Assessable Emissions Estimate, 410 Willoughby Ave., Juneau, AK 99801-1795**;** 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

2.2 if no estimate is received on or before March 31 of each year, emission fees for the next fiscal year will be based on the potential to emit set forth in condition 1.1.

[18 AAC 50.346(a)(1), 5/3/02 and 18 AAC 50.350(c) & 50.400 – 50.420, 1/18/97]

## *Section 5. Source-Specific Requirements*

### Fuel-Burning Equipment

**3. Visible Emissions.** The Permittee shall not cause or allow visible emissions, excluding condensed water vapor, emitted from Source ID(s) 1, 2, and 5 through 11 listed in Table 1 to reduce visibility through the exhaust effluent by any of the following:

a. more than 20% for more than three minutes in any one hour[1],

[18 AAC 50.055(a)(1), 1/18/97 and 18 AAC 50.350(d)(1)(C), 6/21/98]
[40 CFR 52.70, 11/18/98]

b. more than 20% averaged over any six consecutive minutes[2],

[18 AAC 50.055(a)(1) & 50.346(c), 5/3/02 and 18 AAC 50.350(d)(1)(C), 6/21/98]

c. more than 10% averaged over any six consecutive minutes.

[Federal Prudhoe Bay Unit PSD Permit Nos. PSD-X80-09, PSD-X81-01, and PSD-X81-13, as amended 8/29/1997]

The Permittee shall not cause or allow visible emissions, excluding condensed water vapor, emitted from Source ID(s) 12 and 13 listed in Table 1 to reduce visibility through the exhaust effluent by any of the following:

d. more than 20% for more than three minutes in any one hour[1],

[18 AAC 50.055(a)(1), 1/18/97 and 18 AAC 50.350(d)(1)(C), 6/21/98]
[40 CFR 52.70, 11/18/98]



e. more than 20% averaged over any six consecutive minutes[2],

[18 AAC 50.055(a)(1) & 50.346(c), 5/3/02 and 18 AAC 50.350(d)(1)(C), 6/21/98]

f. more than 5% averaged over any six consecutive minutes.

[Federal Prudhoe Bay Unit PSD Permit No. PSD-X81-01, as amended 8/29/1997]

The Permittee shall not cause or allow visible emissions, excluding condensed water vapor, emitted from Source ID(s) 14 through 37 listed in Table 1 to reduce visibility through the exhaust effluent by any of the following:

g. more than 20% for more than three minutes in any one hour[1],

[18 AAC 50.055(a)(1), 1/18/97 and 18 AAC 50.350(d)(1)(C), 6/21/98]
[40 CFR 52.70, 11/18/98]

h. more than 20% averaged over any six consecutive minutes.[2]

[18 AAC 50.055(a)(1) & 50.346(c), 5/3/02 and 18 AAC 50.350(d)(1)(C), 6/21/98]

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[1] For purposes of this permit, the “more than three minutes in any one hour” criterion in this condition and condition 38 will no longer be effective when the Air Quality Control (18 AAC 50) regulation package effective 5/3/02 is adopted by the U.S. EPA.

[2] The six-minute average standard is enforceable only by the state until 18 AAC 50.055(a)(1), dated May 3, 2002, is approved by EPA into the SIP at which time this standard becomes federally enforceable.

3.1 For Source ID(s) 1, 2, and 5 through 13 and 18 through 20, burn only gas as fuel. Monitoring for these sources shall consist of an annual certification that each of these sources fired only gas. Report under condition 66 if any fuel is burned other than gas.

3.2 For Source ID(s) 14 through 17, when operated only on gas, monitoring shall consist of an annual certification that the sources fired only gas. If any of Source ID(s) 14 through 17 operate on liquid fuel for more than 400 hours in any consecutive 12-month period monitor, record, and report according to conditions 26.1b through 28, for that source. Otherwise, monitoring shall consist of an annual certification of compliance with the opacity standard in condition 3.

3.3 For each of Source ID(s) 21 through 26, as long as they do not exceed 400 hours of total (emergency and non-emergency hours combined) operation per consecutive 12-month period, monitoring shall consist of an annual certification of compliance with the opacity standard. Otherwise, monitor, record, and report visible emissions in accordance with Section 6.

3.4 For Source ID(s) 27 through 37 (flares), monitor, record and report in accordance with condition 34.

[18 AAC 50.350(g) - (i) & 50.346(c), 5/3/02]

**4. Particulate Matter.** The Permittee shall not cause or allow particulate matter emitted from Source ID(s) 1, 2, and 5 through 37 listed in Table 1 to exceed 0.05 grains per cubic foot of exhaust gas corrected to standard conditions and averaged over three hours.

[18 AAC 50.346(c), 5/3/02; 18 AAC 50.055(b)(1), 1/18/97 and 18 AAC 50.350(d)(1)(C), 6/21/98]



4.1 For Source ID(s) 1, 2, and 5 through 13 and 18 through 20, burn only gas as fuel. Monitoring for these sources shall consist of an annual certification that each of these sources fired only gas. Report under condition 66 if any fuel is burned other than gas.

4.2 For Source ID(s) 14 through 17, when operated only on gas, monitoring shall consist of an annual certification that the sources fired only gas. If any of Source ID(s) 14 through 17 operate on liquid fuel for more than 400 hours in any consecutive 12-month period monitor, record, and report according to conditions 29 through 30 for that source. Otherwise, monitoring shall consist of an annual certification of compliance with the particulate matter standard in condition 4.

4.3 For each of Source ID(s) 21 through 26, as long as they do not exceed 400 hours of total (emergency and non-emergency hours combined) operation per consecutive 12-month period, monitoring shall consist of an annual certification of compliance with the particulate matter standard. Otherwise, monitor, record, and report visible emissions in accordance with conditions 31 through 33.

4.4 For Source ID(s) 27 through 37 (flares) the Permittee must annually certify compliance with the particulate matter standard.

[18 AAC 50.350(g) - (i) & 50.346(c), 5/3/02]

**5.** **Sulfur Compound Emissions.** In accordance with 18 AAC 50.055(c), the Permittee shall not cause or allow sulfur compound emissions, expressed as $SO_2$, from Source ID(s) 1, 2, and 5 through 37 to exceed 500 ppm averaged over three hours.

[18 AAC 50.346(c), 5/3/02; 18 AAC 50.055(c), 1/18/97; and 18 AAC 50.350(d)(1)(C), 6/21/98]

5.1 For Source ID(s) 1, 2, and 5 through 20 and 27 through 37 using fuel gas:

a. Monitoring conducted as required by condition 25.1 satisfies the monitoring requirements necessary to assure compliance with this condition.

b. Keep records of analyses conducted in accordance with condition 25.2.

c. Report as excess emissions, in accordance with condition 66, whenever the fuel combusted causes sulfur compound emissions to exceed the standard of condition 5.

d. Include copies of the records required by condition 5.1b with the facility operating report required by condition 68.

[18 AAC 50.350(g) - (i), 5/3/02]

5.2 For Source ID(s) 14 through 17, and 21 through 26, using liquid fuel from a North Slope topping plant, the Permittee shall obtain from the topping plant the results of a monthly fuel sulfur analysis.



a. The Permittee shall include in the facility operating report required by condition 68 a list of the sulfur content measured for each month covered by the report.

b. If the fuel contains greater than 0.75% sulfur by weight, the Permittee shall calculate $SO_2$ emissions in PPM using either the $SO_2$ material balance calculation in Section 15, or Method 19 of 40 C.F.R 60, Appendix A-7, adopted by reference in 18 AAC 50.040(a).

c. If $SO_2$ emissions are calculated under condition 5.2b to exceed 500 ppm, the Permittee shall report under condition 66. The report shall document the calculation under condition 5.2b.

d. For fuel with a sulfur content greater than 0.75% by weight, the Permittee shall include in the facility operating report required by condition 68 the calculated $SO_2$ emissions in PPM.

[18 AAC 50.350(g) - (i) & 50.346(c), 5/3/02]

## Turbine BACT and Owner Requested Emission Limits

**6.** The Permittee shall limit actual emissions from the turbines, Source ID(s) 1, 2, and 5 through 11, as indicated in Table 2 below.

[Federal Prudhoe Bay Unit PSD Permit Nos. PSD-X80-09 and PSD-X81-13, as amended 8/29/1997]
[18 AAC 50.335(g)(1), 1/18/97]

6.1 The Permittee shall calculate the monthly and the twelve-month consecutive summation of emissions of $NO_X$ and CO for Source ID(s) 1, 2,and 5 through 11; of PM for Source ID(s) 1 and 2, and 5 through 8; and of $SO_2$ for Source ID(s) 6 through 8. Use the emission factors found in Section 16 of this permit, along with the hours of operation and/or amount of fuel used, to calculate the monthly emissions for each unit.

6.2 Report the monthly and the consecutive twelve-month period summation of emissions, for each month of the reporting period, with each facility operating report required by condition 68.

6.3 Notify the Department per condition 66 should the twelve-month consecutive summation of emissions of any air contaminant exceed the limit for that contaminant in Table 2.

6.4 Monitor, record, and report in accordance with condition 24 to demonstrate compliance with the short-term BACT $NO_X$ emission limit in Table 2.

[18 AAC 50.350(g) – (i), 5/3/02]

**Table 2 – Turbine BACT and Owner Requested Emissions Limits** (Limits from AQC Operating Permit No. 9673-AA003 are *italicized* and limits requested by the Permittee are underlined**.** All other limits are from EPA permits PSD-X80-09 and PSD-X81-13.)



| Pollutant | Source ID(s) | Make/Model | Equipment Tag Number | Emission Limit (short-term) per Individual Turbine | Annual Emission Limit per Individual Turbine (tpy) |
|---|---|---|---|---|---|
| $NO_X$ | 1 & 2 | GE MS 5352B | GTRB-01-7000 & GTRB-01-7001 | 173 ppmvd @ 15% $O_2$ | 1,115 |
| | 5 & 6 | Cooper RB211-24C | GTRB-51-3204 & GTRB-51-3304 | 213 ppmvd @ 15% $O_2$ | 999 |
| | 7 & 8 | Sulzer/S3 | GTRB-01-7704A & GTRB-01-7704B | 169 ppmvd @ 15% $O_2$ | 230 |
| | 9, 10, and 11 | Ruston TA2500 | GTRB-51-8001A, GTRB-51-8001B, & GTRB-51-8001C | *150 ppmvd @ 15% $O_2$* | 55.2 (combined) |

| Pollutant | Source ID(s) | Make/Model | Equipment Tag Number | Emission Limit (short-term) per Individual Turbine | Annual Emission Limit per Individual Turbine (tpy) |
|---|---|---|---|---|---|
| **CO** | 1 & 2 | GE MS 5352B | GTRB-01-7000 & GTRB-01-7001 | 0.17 lb/MMBtu for each unit | 269 |
| | 5 & 6 | Cooper RB211-24C | GTRB-51-3204 & GTRB-51-3304 | | 193 |
| | 7 & 8 | Sulzer/S3 | GTRB-01-7704A & GTRB-01-7704B | | 56 |
| | 9, 10, and 11 | Ruston TA2500 | GTRB-51-8001A, GTRB-51-8001B, & GTRB-51-8001C | | 15.3 (combined) |
| **PM** | 1 & 2 | GE MS 5352B | GTRB-01-7000 & GTRB-01-7001 | 0.014 lb/MMBtu for each unit | 22 |
| | 5 | Cooper RB211-24C | GTRB-51-3204 | | 16 |
| | 6 | | GTRB-51-3304 | No Limit | 16 |
| | 7 & 8 | Sulzer/S3 | GTRB-01-7704A & GTRB-01-7704B | No Limit | 4.6 |
| **$SO_2$** | 5 & 6 | Cooper RB211-24C | GTRB-51-3204 & GTRB-51-3304 | No limit for 3204.<br>*25 ppmv $H_2S$ in fuel for 3304 (annual average)* | No limit for 3204.<br>5 for 3304. |
| | 7 & 8 | Sulzer/S3 | GTRB-01-7704A & GTRB-01-7704B | *25 ppmv $H_2S$ in fuel (annual average)* | 1.5 |

Notes:
1) All emission limitations are annual average unless otherwise noted.
2) All turbine group emission limits for $NO_X$ refer to full load, ISO conditions.
3) All other emission limits refer to full load, standard conditions.
4) The annual $NO_X$ and CO emission limits for Source IDs 9, 10, and 11 (combined totals) are based on the annual operating hour limit under condition 9.



## Heater BACT and PSD Avoidance/Owner Requested Emission Limits

**7.** The Permittee shall limit actual emissions from the heaters, Source ID(s) 12, 13, and 20, as indicated in Table 3 below.

[Operating Permit No. 9673-AA003, as amended through 1/16/97]
[18 AAC 50.335(g)(1), 1/18/97]

7.1 The Permittee shall calculate the monthly and the twelve-month consecutive summation of emissions of $NO_X$ and CO for Source ID(s) 12 and 13. Use the emission factors found in Table 6 of Section 16 of this permit, along with the hours of operation and/or amount of fuel used, to calculate the monthly emissions for each unit.

7.2 Report the monthly and the consecutive twelve-month period summation of emissions, for each month of the reporting period, with each facility operating report required by condition 68.

7.3 Notify the Department per condition 66 should the twelve-month consecutive summation of emissions of any air contaminant exceed the limit for that contaminant in Table 3.

7.4 Monitor, record, and report in accordance with condition 11 to demonstrate compliance with the short-term BACT CO emission limit, 60 ppmvd for Source ID(s) 12 and 13, in Table 3.

[18 AAC 50.350(g) – (i), 5/3/02]

**Table 3 – Heater BACT and PSD Avoidance/Owner Requested Emissions Limits** (Limits from AQC Operating Permit No. 9673-AA003 are *italicized* and limits requested by the Permittee are <u>underlined</u>**.**



| Pollutant | Source ID(s) | Make/Model | Equipment Tag Number | Emission Limit (short-term) per Individual Heater | Annual Emission Limit for Heaters (tpy) |
|---|---|---|---|---|---|
| $NO_X$ | 12 & 13 | Econotherm | H-51-8002A & H-51-8002B | *0.08 lb/MMBtu* | <u>71.4 combined total</u> |
| | 20 | Smith | B-01-9920 | *0.08 lb/MMBtu (at 4% excess $O_2$)* | No Limit |
| CO | 12 & 13 | Econotherm | H-51-8002A & H-51-8002B | *Fresh Air Mode Firing*<br>*60 ppmvd* | *Fresh Air Mode Firing*<br><u>145.1 combined total</u> |
| | 20 | Smith | B-01-9920 | *0.018 lb/MMBtu* | No Limit |

Notes:
1) All emission limitations are annual average unless otherwise noted.
2) All emission limits refer to full load, standard conditions.
3) The annual $NO_X$ and CO emissions limits for Source IDs 12 and 13 (combined totals) are based on the firing rate limit under condition 8 and the annual operating hour limit under condition 9.

## Firing Rate for Econotherm Heaters

**8.** The Permittee shall limit the firing rate of Source ID(s) 12 and 13 to 181.5 MMBtu/hr, each individually.

[18 AAC 50.335(g)(1), 1/18/97]

8.1 Using the fuel consumption values determined in condition 12 calculate on a monthly basis the firing rate for Source ID(s) 12 and 13 in MMBtu/hr

8.2 Report using the facility operating report required by condition 68, the data recorded under condition 8.1.

## Operating Hour Limits

**9.** The Permittee shall limit the hours of operation for Source ID(s) 9 through 11 (combined), Source ID(s) 12 and 13 (combined), and each of Source ID(s) 21 through 26 during each consecutive 12-month period as indicated in Table 4 below.

[Operating Permit No. 9673-AA003, as amended through 1/16/97]

9.1 Monitor and record, the operating hours for Source ID(s) 9 through 11, 12 and 13, and 21 through 26 in accordance with condition 10.1.

9.2 Report using the facility operating report required by condition 68, the monthly and consecutive 12-month hours of operation for Sources ID(s) 9 through 11 combined and Source ID(s) 12 and 13 combined for each month of the reporting period.

9.3 Report using the facility operating report required by condition 68, the monthly and consecutive 12-month hours of operation for each of Source ID(s) 21 through 26 for each month of the reporting period.



9.4 Notify the Department in accordance with condition 66 whenever a source is operated beyond any limit in Table 4.

[18 AAC 50.350(g) – (i), 5/3/02]

**Table 4 - Operating Hour Limits**

| Source ID(s) | Make/Model | Equipment Tag Number | Operating Hour Consecutive 12-month Limits | Explanation |
|---|---|---|---|---|
| 9 through 11 | Ruston TA2500 | GTRB-51-8001A, GTRB-51-8001B, & GTRB-51-8001C | 5600 combined total | None necessary |
| 12 & 13 | Econotherm | H-51-8002A & H-51-8002B | 8900 combined total | During fresh-air firing mode[1] |
| 21 through 26 | Caterpillar | GNED-01-0001 & GNED-01-0002 | 200 per unit | None necessary |
| | Detroit | GNED –01-0011, PED-01-7004, & GNED-01-8004 | | |
| | Alison | GTRB-51-8001 | | |

1) With the fuel flow valve in automatic operation.

## Hours of Operation Monitoring

**10.** The Permittee shall monitor, record and report the hours of operation as follows.

[Operating Permit No. 9673-AA003, as amended through 1/16/97]

10.1 Monitor and record the monthly operating time for each of Source ID(s) 1, 2, and 5 through 26.

10.2 For each of Source ID(s) 14 through 17, monitor and record the monthly operating time separately for fuel gas and liquid fuel firing and record the consecutive 12-month total liquid fuel operating time.

10.3 For each of Source ID(s) 21 through 26, record the consecutive 12-month total hours of operation (total of emergency and non-emergency hours)

10.4 Report using the facility operating report under condition 68, the data recorded under conditions 10.1 through 10.3.

[18 AAC 50.350(g) – (i), 5/3/02]

## Flue Gas Monitoring

**11.** The Permittee shall monitor flue gas carbon monoxide and oxygen for Source ID(s) 12 and 13 while operating in the fresh air mode. Monitoring is not required during startup[3].

[Operating Permit No. 9673-AA003, as amended through 1/16/97]



11.1 Monitoring shall be conducted in accordance with the Department approved monitoring plan proposed by the Permittee on July 31, 1985.

11.2 Record the carbon monoxide and oxygen concentration of the flue gas measured in accordance with condition 11.1. In addition, record the heater duty during CO and $O_2$ measurements.

11.3 Submit copies of the records required by condition 11.2 with the facility operating report required by condition 68.

[18 AAC 50.350(g) – (i), 5/3/02]

## Fuel Consumption Monitoring

**12.** The Permittee shall monitor the monthly fuel consumption for Source IDs 1 through 37 as source category totals. For turbines (Source IDs 1, 2, and 5 through 11), the Permittee shall either maintain and operate a monitoring device (e.g. a fuel gas meter) to measure the total volume of fuel gas consumed by Source ID(s) 1, 2, and 5 through 11 combined or estimate the total volume of fuel consumed by other means. For Source Groups II, III, and IV (Source IDs 12 through 37), the total volume of fuel consumed by each source group may be estimated.

[Operating Permit No. 9673-AA003, as amended through 1/16/97]

[3] For purposes of this permit "startup" for the Econotherm heaters means the time from initial firing of the unit until normal operating condition is achieved but is never to exceed three hours of operation.

12.1 Record the monthly fuel consumption for Source Groups I, II, III, and IV of Table 1.

12.2 Submit copies of the records required by condition 12.1 with the facility operating report required by condition 68. Report the total quantity and type of fuel burned in each source group (Source Groups I, II, III, and IV of Table 1), and the total quantity of fuel burned at the facility, MMscf per month for fuel gas-fired sources and gallons per month for liquid fuel-fired sources.

[18 AAC 50.350(g) – (i), 5/3/02]

## Fuel Gas Sulfur Content Limit

**13.** The Permittee shall not use fuel gas, in Source ID(s) 6 through 8, with a hydrogen sulfide ($H_2S$) concentration that exceeds 25 ppmv at standard conditions, annual average. Upon completion of Department approved air quality modeling, this limit will be increased to 125 ppmv.

[Operating Permit No. 9673-AA003, as amended through 1/16/97]

13.1 Monitor and record according to conditions 25.1 and 25.2.

13.2 Report the consecutive twelve-month period average fuel gas $H_2S$ concentration, for each month of the reporting period, with each facility operating report required by condition 68.

13.3 Notify the Department per condition 66 should the twelve-month period average fuel gas $H_2S$ concentration exceed the limit in condition 13.

[18 AAC 50.350(g) – (i), 5/3/02]



## Sources Subject to Federal New Source Performance Standards (NSPS), Subpart A

**14.** **NSPS Subpart A Startup, Shutdown, & Malfunction Requirements.** The Permittee shall maintain records for Source ID(s) 1, 2, and 5 through 11, 20, 26, 38 and 39 in accordance with 40 CFR 60.7(b).

[18 AAC 50.350(h), 5/3/02 & 18 AAC 50.040(a)(1), 8/15/02]
[40 C.F.R. 60.7(b), Subpart A, 7/1/01]

**15.** **NSPS Subpart A Excess Emissions and Monitoring Systems Performance Report.** For Source ID(s) 1, 2, and 5 through 11, and 26 the Permittee shall comply with 40 CFR 60.7(c) and (d).

[18 AAC 50.350(i), 5/3/02 & 18 AAC 50.040(a)(1), 8/15/02]
[40 C.F.R. 60.7(c) & (d), Subpart A, 7/1/01]

**16.** **NSPS Subpart A Performance (Source) Tests**. At such times as may be required by the NSPS Administrator, the Permittee shall conduct source tests for Source ID(s) 1, 2, and 5 through 8 according to Section 10 of this permit and 40 C. F. R. 60.8 and shall provide the Department and EPA with a written report of the results of the source test.

[18 AAC 50.040(a)(1), 8/15/02]
[40 C.F.R. 60.8(a) - (e), Subpart A, 7/1/01]
[18 AAC 50.350(i), 5/3/02]

**17. NSPS Subpart A Good Air Pollution Control Practice.** The Permittee shall, maintain and operate Source ID(s) 1, 2, and 5 through 11, 20, 26, 38 and 39 in accordance with 40 CFR 60.11(d).

[18 AAC 50.040(a)(1), 8/15/02]
[40 C.F.R. 60.11(d), Subpart A, 7/1/01]

**18. NSPS Subpart A Credible Evidence.** The credible evidence rule of 40 CFR 60.11(g) applies to Source ID(s) 1, 2, and 5 through 11, 26, and 38.

[18 AAC 50.040(a)(1), 8/15/02]
[40 C.F.R. 60.11(g), Subpart A, 7/1/01]

**19. NSPS Subpart A Concealment of Emissions.** The Permittee shall not conceal emissions from Source ID(s) 1, 2, and 5 through 11, 26, and 38 as provided in 40 CFR 60.12. Monitoring shall consist of an annual certification that the Permittee does not conceal emissions.

[18 AAC 50.040(a)(1), 8/15/02]
[40 C.F.R. 60.12, Subpart A, 7/1/01]

## Sources Subject to NSPS Subpart Dc

**20. NSPS Subpart Dc Requirements.** The Permittee shall maintain records of the amount of fuel gas combusted during each day for Source ID 20 in accordance with 40 CFR 60.48c(g) Subpart Dc.



[18 AAC 50.040(a)(2)(D), 8/15/02]
[40 C.F.R. 60.48c(g), Subpart Dc, 7/1/01]

## Storage Tanks Subject to NSPS Subpart Ka

**21.** The Permittee shall not store in Source ID 39 a petroleum liquid with a true vapor pressure greater than 1.0 psia without first taking measures to comply with 40 CFR 60.112a, §60.113a, and/or §60.115a, as applicable. Monitoring shall consist of an annual certification that the Permittee stored only Arctic Heating Fuel, Diesel Fuel, or Jet A in Source ID 39, or if other materials are stored in Source ID 39 that the true vapor pressure of the material stored is 1.0 psia or less.

[18 AAC 50.040(a)(2)(L), 8/15/02]
[40 C.F.R. 60.115a(d)(1), Subpart Ka, 7/1/01]

## Storage Tanks Subject to NSPS Subpart Ka VOC Standard

**22. NSPS Subpart Ka VOC Standard.** The Permittee shall maintain and operate Source ID 38 with a vapor recovery system meeting the specifications of 40 CFR 60.112a(a)(3) and in accordance with the Operations and Maintenance Plan developed in compliance with 40 CFR 60.113a(a)(2)(iii).

[18 AAC 50.040(a)(2)(L), 8/15/02]
[40 C.F.R. 60.112a(a)(3), Subpart Ka, 7/1/01]

## Turbines Subject to NSPS Subpart GG, Source ID(s) 1, 2, and 5 through 11

**23. NSPS Subpart GG $NO_X$ Standard.** The Permittee shall not allow the exhaust gas concentration of $NO_X$ from Source ID(s) 1, 2, and 5 through 8 to exceed the standard found in 40 CFR 60.332(a)(2). Based on the provisions of this standard, the corrected exhaust gas $NO_X$ concentration standards for Source ID(s) 1, 2, and 5 through 8 are as follows:

a. Source ID(s) 1 & 2 shall not exceed 173 ppmvd at 15% $O_2$, ISO;

b. Source ID(s) 5 & 6 shall not exceed 213 ppmvd at 15% $O_2$, ISO; or

c. Source ID(s) 7 & 8 shall not exceed 169 ppmvd at 15% $O_2$, ISO.

[18 AAC 50.040(a)(2)(V), 8/15/02]
[40 C.F.R. 60.332(a)(2), Subpart GG, 7/1/01]

**24. $NO_X$ Monitoring, Recordkeeping, and Reporting for NSPS Subpart GG Turbines.**

24.1 **Waivers**. The Permittee shall provide to the Department a written copy of any U.S. EPA granted waiver of the federal emission standards, recordkeeping, monitoring, performance testing, or reporting requirements, or approved custom monitoring schedules upon request by the Department. The Permittee shall keep a copy of each U.S. EPA issued monitoring waiver or custom monitoring schedule on file.



24.2 **Periodic Testing**.

a. **Initial Periodic Testing.** For each turbine subject to condition 6 and/or 23 that operates for 400 hours or more in any 12-month period during the life of this permit, the Permittee shall satisfy either condition 24.2a(i) or 24.2a(ii).

(i) For existing turbines not represented by emission data described in condition 24.2a(ii), the Permittee shall conduct a $NO_x$ and $O_2$ source test under 40 C.F.R. 60, Appendix A-7, Method 20 or following another protocol approved by the Department within three years after issuance of this permit

(A) for each turbine, or

(B) on one turbine to represent a group of turbines, if allowed to do so under condition 24.3.

(ii) If a test following 40 C.F.R. 60, Appendix A-7, Method 20 or following another protocol approved by the Department has been conducted on a turbine within two years before the issuance date of this permit, and the test shows that emissions at maximum load are less than 90 percent of the applicable emission limit(s) in conditions 6 and/or 23, then

(A) the Permittee may use those test results to represent emissions from that turbine or for a group of turbines if allowed under condition 24.3 until the testing of condition 24.2a(ii)(B) is performed; and

(B) the Permittee shall conduct a Method 20 test or a test following any other protocol approved by the Department on each turbine, or on one of a group of turbines as allowed under condition 24.3, within the 5 years of the permit term.

b. **Higher Tier Testing.** For each turbine with test results under condition 24.2a that are 90 percent or more of the applicable emission limit(s) of conditions 6 or 23, or for which emissions will equal or exceed 90% of the emission limit at maximum load, as shown through condition 24.4, the Permittee shall conduct an additional Method 20 test or a test following another protocol approved by the Department for the turbine within one year of the test under condition 24.2a. The Permittee shall conduct at least one additional test per year until at least two consecutive tests show that emissions for the turbine are less than 90 percent of the limit at loads up to maximum load.

24.3 **Substituting Test Data.** The Permittee may use a test under conditions 24.2a or 24.2b performed on only one of a group of turbines to satisfy the requirements of those conditions for the other turbines in the group if

a. the Permittee demonstrates that test results are less than 90% of the applicable emission limit(s) of conditions 6 and/or 23, and are projected under condition 24.4 to be less than 90% of the limit at maximum load;



b. for any source test done after the issuance date of this permit, the Permittee identifies in a source test plan under condition 58

(i) the turbine to be tested;

(ii) the other turbines in the group that are to be represented by the test; and

(iii) why the turbine to be tested is representative, including that each turbine in the group

(A) is located at a facility operated and maintained by the Permittee;

(B) is the same make and model and has identical fuel nozzles and combustor; and

(C) uses the same fuel type.

c. for any source test done before the issuance date of this permit and used under condition 24.2a(ii), the Permittee

(i) demonstrates why the test results are representative of emissions from the entire group of turbines, including that each turbine in the group

(A) is located at a facility operated and maintained by the Permittee;

(B) is the same make and model and has identical fuel nozzles and combustor; and

(C) uses the same fuel type.

(ii) submits all results of source testing that has been performed on each turbine in the group, regardless of the date of the test, and certifies that the submittal is complete, consistent with 18 AAC 50.205.

**24.4 Load.**

a. The Permittee shall conduct all tests under condition 24.2 in accordance with 40 C.F.R. 60.335(c)(3), except as otherwise approved in writing by the Department, or by EPA if the circumstances at the time of the EPA approval are still valid. For the highest load condition, if it is not possible to operate the turbine during the test at maximum load, the Permittee will test the turbine when operating at the highest load achievable by the turbine under the ambient and facility operating conditions in effect at the time of the test.



b. The Permittee shall demonstrate in the source test plan for any test performed after the issue date of this permit whether the test is scheduled when maximum $NO_x$ emissions are expected.

c. If the highest operating rate tested is less than the maximum load of the tested turbine or another turbine represented by the test data,

(i) for each such turbine the Permittee shall provide to the Department as an attachment to the source test report

(A) additional test information from the manufacturer or from previous testing of units in the group of turbines; if using previous testing of the group of turbines, the information must include all available test data for the turbines in the group, and

(B) a demonstration based on the additional test information that projects the test results from condition 24.2 to predict the highest load at which emissions will comply with the applicable limit(s) in conditions 6 and/or 23.

(ii) the Permittee shall not operate any turbine represented by the test data at loads for which the Permittee's demonstration predicts that emissions will exceed the applicable limit(s) of conditions 6 and/or 23;

(iii) the Permittee shall comply with a written finding prepared by the Department that

(A) the information is inadequate for the Department to reasonably conclude that compliance is assured at any load greater than the test load, and that the Permittee must not exceed the test load;

(B) the highest load at which the information is adequate for the Department to reasonably conclude that compliance assured is less than maximum load, and the Permittee must not exceed the highest load at which compliance is predicted, or

(C) the Permittee must retest during a period of greater expected demand on the turbine.

(iv) the Permittee may revise a load limit by submitting results of a more recent approved test done at a higher load, and, if necessary, the accompanying information and demonstration described in condition 24.4c(i); the new limit is subject to any new Department finding under condition 24.4c(iii) and

d. In order to perform an emission test, the Permittee may operate a turbine at a higher load than that prescribed by condition 24.4c.



e. For the purposes of conditions 24.1 through 24.6, maximum load means the hourly average load that is the smallest of

(i) 100 percent of manufacturer's design capacity of the gas turbine at ISO standard day conditions;

(ii) the highest load allowed by an enforceable condition that applies to the turbine; or

(iii) the highest load possible considering permanent physical restraints on the turbine or the equipment which it powers.

**24.5 Recordkeeping.**

a. The Permittee shall comply with the following for each turbine for which a demonstration under condition 24.4c does not show compliance with the applicable limit(s) of conditions 6 or 23 at maximum load.

(i) The Permittee shall keep records of

(A) load; or

(B) as approved by the Department, surrogate measurements for load and the method for calculating load from those measurements.

(ii) Records in condition 24.5a shall be hourly or otherwise as approved by the Department.

(iii) Within one month after submitting a demonstration under condition 24.4c(i)(B) that predicts that the highest load at which emissions will comply is less than maximum load, or within one month of a Department finding under condition 24.4c(iii), whichever is earlier, the Permittee shall propose to the Department how they will measure load or load surrogates, and shall propose and comply with a schedule for installing any necessary equipment and beginning monitoring. The Permittee shall comply with any subsequent Department direction on the load monitoring methods, equipment, or schedule.

b. For any turbine subject to conditions 6 and/or 23, that will operate less than 400 hours in any 12 consecutive months, keep monthly records of the hours of operation. If a turbine that normally operates less than 400 hours exceeds that total during any 12-month period,

(i) test according to condition 24.2; or

(ii) if it is no longer possible to meet that schedule, test within one year of exceeding 400 hours in 12 consecutive months.



**24.6 Reporting.**

a. In each facility operating report under condition 68 the Permittee shall list for each turbine tested or represented by testing at less than maximum load and for which the Permittee must limit load under condition 24.4c

(i) the load limit;

(ii) the turbine identification; and

(iii) the highest load recorded under condition 24.5a during the period covered by the operating report.

b. In each facility operating report under condition 68 for each turbine for which condition 24.2 has not been satisfied because the turbine normally operates less than 400 hours in any 12 months, the Permittee shall identify

(i) the turbine;

(ii) the highest number of operating hours for any 12 months ending during the period covered by the report; and

(iii) any turbine that operated for 400 or more hours.

c. The Permittee shall report under condition 66 if

(i) a test result exceeds the emission standard;

(ii) testing is required under condition 24.2 or 24.5b but not performed, or

(iii) the turbine was operated at a load exceeding that allowed by conditions 24.4c(ii) and 24.4c(iii); exceeding a load limit is deemed a single violation rather than a multiple violation of both monitoring and the underlying emission limit.

[18 AAC 50.350(g) - (i), 5/3/02, 50.220(a) - (c), 1/18/97, & 50.040(a)(1), 7/2/00]

**25. NSPS Subpart GG Sulfur Standard.** The Permittee shall not allow the sulfur content of the fuel burned in Source ID(s) 1, 2, 5 through 11, and 26 to exceed 0.8 percent by weight.

[18 AAC 50.040(a)(2)(V), 8/15/02]
[40 C.F.R. 60.333(b), Subpart GG, 7/1/01]

25.1 **Monitoring**

[40 C.F.R. 60.335(d), Subpart GG, 7/1/01]
[Alternative Monitoring Plan, 10/2/97]
[Custom Fuel Monitoring Schedules, 5/8/96 and 8/19/96]
[18 AAC 50.350(g), 1/18/97]

a. For gaseous fuels, (Source ID(s) 1, 2, and 5 through 11), determine compliance at least monthly with the fuel sulfur content standard in this condition as follows;



(i) Determine the sulfur content of the fuel gas using ASTM D 4810-88, ASTM D 4913-89, Gas Producer's Association (GPA) method 2377-86, or an alternative analytical method approved by the Administrator.

[40 C.F.R. 60.335(d), Subpart GG, 7/1/01]

b. For liquid fuels (Source ID 26), determine compliance with the fuel sulfur content standard in this condition as follows:

(i) Determine the liquid fuel sulfur content on each occasion that fuel is transferred to the bulk storage tank from any other source or in accordance with an EPA-approved custom fuel-monitoring schedule.

[40 C.F.R. 60.334(b)(1) & (b)(2), Subpart GG, 7/1/01]

(ii) Determine the sulfur content of the liquid fuel using ASTM D 2880-71 or an EPA-approved alternative method.

[40 C.F.R. 60.335(d), Subpart GG, 7/1/01]

c. The fuel sulfur analyses required under this condition may be performed by the owner or operator, a service contractor retained by the owner or operator, the fuel vendor, or any other qualified agency.

[40 C.F.R. 60.335(e), Subpart GG, 7/1/01]

25.2 **Recordkeeping** - Keep records of analyses conducted as required by condition 25.1a and 25.1b

[18 AAC 50.350(h), 5/3/02]

25.3 **Reporting**

a. The Permittee shall semi-annually report to the EPA results of all sulfur monitoring required by this condition.

[Custom Fuel Monitoring Schedule, 5/8/96]

b. For the purpose of EEMSP reports and summary reports required under condition 15, report any period during which the sulfur content of the fuel being fired in the gas turbine exceeds 0.8 percent sulfur by weight as excess emissions.

[40 C.F.R. 60.334(c)(2), Subpart GG, 7/1/01]
[Custom Fuel Monitoring Schedule, 5/8/96]

c. Include copies of the records required by condition 25.2 with the facility operating report required by condition 68.

[18 AAC 50.350(i), 5/3/02]

## *Section 6. Visible Emissions and PM Monitoring, Recordkeeping and Reporting*

### Liquid-Fired Sources (Source ID(s) 14 through 17 and 21 through 26)

**26. Visible Emissions Monitoring.** The Permittee shall observe the exhaust of Source ID(s) 14 through 17 and 21 through 26 for visible emissions using the Method 9 Plan under condition 26.1.

26.1 **Method 9 Plan.** For all 18-minute observations in this plan, observe exhaust, following 40 C.F.R. 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. For Source ID(s) 21 through 26, observe exhaust for 18 minutes within six months after the effective date of this permit.

b. Second Method 9 Observation. Observe exhaust while firing on liquid fuel per condition 26.1 within 30 days after the end of a calendar month in which the cumulative hours of operation on liquid fuel for the past 12 consecutive months exceed 400, except when an 18-minute Method 9 observation has already been conducted in accordance with condition 26.1 in the same 12 consecutive month period and the source appears to not have excess visible emissions while in operation on liquid fuel.

c. Third Method 9 Observation. Observe exhaust while firing on liquid fuel per condition 26.1 within 30 days after the end of a calendar month in which the cumulative hours of operation on liquid fuel for the past 12 consecutive month period exceed 800.



d. Increased Method 9 Frequency. If a six-minute average opacity is observed during the most recent set of observations to be greater than 15 percent and one or more observations are greater than 20 percent, then increase or maintain the 18-minute observation frequency for that source to at least monthly intervals, until a six-minute average opacity observed during the most recent set of observations is not greater than 15 percent or no more than one observation is greater than 20 percent.

[18 AAC 50.350(f)(4), 1/18/97, 18 AAC 50.350(g) & 50.346(c), 5/3/02]

**27. Visible Emissions Recordkeeping.** The Permittee shall keep records in accordance with this condition.

[18 AAC 50.350(h) & 50.346(c), 5/3/02]

27.1 When conducting the Method 9 observations of condition 26

a. the observer shall record

(i) the name of the facility, emissions source and location, facility type, observer's name and affiliation, and the date on the Visible Emissions Field Data Sheet in Section 14;

(ii) the time, estimated distance to the emissions 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 Visible Emissions Observation Record in Section 14, and

(v) the minimum number of observations required by the permit; each momentary observation recorded shall be deemed to represent 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.



**28. Visible Emissions Reporting.** The Permittee shall report visible emissions as follows:

[18 AAC 50.350(i) & 50.346(c), 5/3/02]

28.1 include in each facility operating report under condition 68

a. copies of the observation results (i.e. opacity observations), except for the observations the Permittee has already supplied to the Department;

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 were greater than 20 percent;

c. a summary of any monitoring or recordkeeping required under conditions 26 and 27 that was not done.

28.2 report under condition 66:

a. the results of Method 9 observations that exceed an average 20 percent for any six-minute period; and

b. if any monitoring under condition 26 was not performed when required.

**29. Particulate Matter Monitoring for Liquid Fuel-Fired Heaters.** The Permittee shall conduct source tests on liquid fuel fired heaters, Source ID(s) 14 through 17, to determine the concentration of particulate matter (PM) in the exhaust of a source in accordance with the following:

[18 AAC 50.346(c) & 50.350(g) – (h), 5/3/02]

29.1 Except as provided in condition 29.4, within six months of exceeding the criteria of condition 29.2, either

a. conduct a PM source test according to requirements set out in Section 10; or

b. make repairs so that emissions no longer exceed the criteria of condition 29.2; to show that emissions are below those criteria, observe emissions as described in condition 26 under load conditions comparable to those when the criteria were exceeded.

29.2 Conduct the test according to condition 29.1 if 18 consecutive minutes of Method 9 observations result in an 18-minute average opacity greater than 20 percent.



29.3 During each one hour PM source test run, observe the exhaust for 18 minutes in accordance with Method 9 and calculate the average opacity that was measured during each one-hour test run. Submit a copy of these observations with the source test report.

29.4 The automatic PM source test requirement in conditions 29.1 and 29.2 is waived for an emissions unit if a PM source test on that unit has shown compliance with the PM standard during this permit term.

**30. Particulate Matter Reporting for Liquid Fuel-Fired Heaters.** The Permittee shall report as follows:

[18 AAC 50.350(i) & 50.346(c), 5/3/02]

30.1 report under condition 66

a. the results of any PM source test that exceed the PM emissions limit; or

b. if the threshold of condition 29.2 was exceeded and the Permittee did not comply with either condition 29.1a or 29.1b.

30.2 in each facility operating report under condition 68, include

a. the dates, Source ID(s), and results when an observed 18-minute average was greater than the threshold in condition 29.2;

b. a summary of the results of any PM testing under condition 29; and

c. copies of any visible emissions observation results (opacity observations) greater than the threshold of condition 29.2, if they were not already submitted.

**31. Particulate Matter Monitoring for Liquid Fuel-Fired Engines.** The Permittee shall conduct source tests on liquid fuel-fired engines, Source ID(s) 21 through 26, to determine the concentration of particulate matter (PM) in the exhaust of a source in accordance with the following.

[18 AAC 50.350(g) & 50.346(c), 5/3/02]

31.1 Except as provided in condition 31.4,within six months of exceeding the criteria of condition 31.2a or 31.2b, either

a. conduct a PM source test according to requirements set out in Section 10; or

b. make repairs so that emissions no longer exceed the criteria of condition 31.2; to show that emissions are below those criteria, observe emissions as described in condition 26.1 under load conditions comparable to those when the criteria were exceeded.

31.2 Conduct the test according to condition 31.1 if

a. 18 consecutive minutes of Method 9 observations result in an 18-minute average opacity greater than 20 percent, or

b. for a source with an exhaust stack diameter that is less than 18 inches, 18 consecutive minutes of Method 9 observations result in an 18-minute average opacity that is greater than 15 percent and not more than 20 percent, unless the Department has waived this requirement in writing.



31.3 During each one-hour PM source test run, observe the exhaust for 18 minutes in accordance with Method 9 and calculate the average opacity that was measured during each one-hour test run. Submit a copy of these observations with the source test report.

31.4 The automatic PM source test requirement in conditions 31.1 and 31.2 is waived for an emissions unit if a PM source test on that unit has shown compliance with the PM standard during this permit term.

**32. Particulate Matter Recordkeeping for Liquid Fuel-Fired Engines.** Within 180 calendar days after the effective date of this permit, the Permittee shall record the exhaust stack diameter(s) of Source ID(s) 21 through 26. Report the stack diameter(s) in the next facility operating report under condition 68.

[18 AAC 50.350(h) & 50.346(c), 5/3/02]

**33. Particulate Matter Reporting for Liquid Fuel-Fired Engines.** The Permittee shall report as follows:

[18 AAC 50.346(c) & 50.350(i), 5/3/02]

33.1 report under condition 66

a. the results of any PM source test that exceed the PM emissions limit; or

b. if one of the criteria of condition 31.2 was exceeded and the Permittee did not comply with either condition 31.1a or 31.1b;

33.2 report observations in excess of the threshold of condition 31.2b within 30 days of the end of the month in which the observations occur;

33.3 in each facility operating report under condition 68, include

a. the dates, Source ID(s), and results when an observed 18-minute average was greater than an applicable threshold in condition 31.2;

b. a summary of the results of any PM testing under condition 31; and

c. copies of any visible emissions observation results (opacity observations) greater than the thresholds of condition 31.2, if they were not already submitted.

## Flares (Source ID(s) 27 through 37)



**34. Visible Emissions Monitoring, Recordkeeping, and Reporting**. The Permittee shall observe the first six daylight flare events[4] occurring during the life of this permit[5].

34.1 Monitor flare events using Method-9 for 18 minutes to obtain 72 individual 15-second readings.

34.2 Record the following information for observed events:

a. the flare(s) Source ID number;

b. results of the Method-9 observations;

c. reason(s) for flaring;

d. date, beginning and ending time of event; and

e. cumulative volume of gas flared.

[4] For purposes of this permit, a "flare event" is flaring of gas for greater than one hour as a result of scheduled release operations, i.e. maintenance or well testing activities. It does not include non-scheduled release operations, i.e. process upsets, emergency flaring, or de minimis venting of gas incidental to normal operations.
[5] Flare events monitored within 12-months prior to permit effective date may count towards the six-event total.

34.3 Monitoring of a flare event may be postponed for safety or weather reasons, or because a qualified observer is not available. Until monitoring has been completed on the six flare events described in this condition, the Permittee shall either monitor each qualifying flare event or include in the next facility operating report required by condition 68 an explanation of the reason the event was not monitored.

34.4 Attach copies of the records required by condition 34.2 with the facility operating report required by condition 68.

34.5 Report under condition 66 whenever the opacity standard in condition 3 is exceeded.

[18 AAC 50.350(g) – (i), 5/3/02]

## *Section 7. Facility-Wide Requirements*

### Halon Prohibitions, 40 CFR 82

**35.** **Significant New Alternatives Policy Programs.** The Permittee shall comply with the prohibitions set out in 40 CFR 82.174(b) through (d) (Protection of Stratospheric Ozone Subpart G – Significant New Alternatives Policy Program) pertaining to substitute products for ozone-depleting compounds. Monitoring shall consist of an annual certification that the Permittee complies with these prohibitions.

[18 AAC 50.040(d), 8/15/02]
[40 CFR 82.174 (b) - (d), 7/1/01]

**36.** **Halon Emissions Reduction.** The Permittee shall comply with the prohibitions set out in 40 CFR 82.270(b) through (f) (Protection of Stratospheric Ozone Subpart H – Halon Emissions Reduction). Monitoring shall consist of an annual certification that the Permittee complies with these prohibitions.

[18 AAC 50.040(d), 8/15/02]
[40 CFR 82.270 (b) - (f), 7/1/01]

## *Section 8. Insignificant Sources*

This section contains the requirements that the Permittee identified under 18 AAC 50.335(q)(2) as applicable to insignificant sources at the facility. This section also specifies the testing, monitoring, recordkeeping, and reporting for insignificant sources that the Department finds necessary to ensure compliance with the applicable requirements. Insignificant sources are not exempted from any air quality control requirement or federally enforceable requirement.

As set out in 18 AAC 50.350(m), the shield of AS 46.14.290 does not apply to these sources.

**37.** For sources at the facility that are insignificant as defined in 18 AAC 50.335(q)-(v) that are not listed in this permit, the following apply:

37.1 The Permittee shall submit the compliance certifications of condition 69 based on reasonable inquiry;

37.2 The Permittee shall comply with the requirements of condition 49;

37.3 The Permittee shall report in the facility operating report required by condition 68 if a source is insignificant because of historical actual emissions less than the thresholds of 18 AAC 50.335(r), and current actual emissions become greater than any of those thresholds.

37.4 No other monitoring, recordkeeping or reporting is required.

[18 AAC 50.346(b)(1), 5/3/02]



**38.** The Permittee shall not cause or allow visible emissions, excluding condensed water vapor, emitted from an industrial process, fuel-burning equipment, or an incinerator to reduce visibility through the exhaust effluent by either

38.1 more than 20% for more than three minutes in any one hour[6], or

[18 AAC 50.055(a)(1), 1/18/97, 40 CFR 52.70, 11/18/98]

38.2 more than 20% averaged over any six consecutive minutes[7].

[18 AAC 50.055(a)(1), 5/3/02]

**39.** The Permittee shall not cause or allow particulate matter emitted from an industrial process or fuel-burning equipment to exceed 0.05 grains per cubic foot of exhaust gas corrected to standard conditions and averaged over three hours.

[18 AAC 50.055(b)(1), 1/18/97]

**40.** The Permittee shall not cause or allow sulfur compound emissions, expressed as $SO_2$, from an industrial process or fuel-burning equipment, to exceed 500 ppm averaged over three hours.

[18 AAC 50.055(c), 1/18/97]

[6] See Footnote 1.
[7] See Footnote 2.

## *Section 9. Generally Applicable Requirements*

**41.** **NESHAPs Subpart A, Applicability Determination**. The Permittee shall determine rule applicability and designation of affected sources under National Emission Standards for Hazardous Air Pollutants (NESHAPs) for Source Categories (40 CFR 63) in accordance with the procedures described in 40 CFR 63.1(b).

41.1 **NESHAPs Subpart A, Recordkeeping.** The Permittee shall maintain records in accordance with §63.10(b)(3).

[40 C.F.R. 63.1(b) & 40 C.F.R. 63.10(b)(3), 4/5/02]
[18 AAC 50.350(h), 5/3/02; 18 AAC 50.040(c)(1)(A) & 50.040(c)(1)(E), 8/15/02]

**42.** **Asbestos NESHAP.** The Permittee shall comply with the requirements set forth in 40 C.F.R. 61.145 and 61.150 of Subpart M and the applicable sections set forth in 40 C.F.R. 61, Subpart A and Appendix A.

[18 AAC 50.040(b)(3), 8/15/02 & 18 AAC 50.350(d)(1), 1/18/97]
[40 C.F.R. 61, Subparts A & M, and Appendix A, 7/1/01]

**43.** **Refrigerant Recycling and Disposal.** The Permittee shall comply with the applicable standards for recycling and emission reduction of refrigerants set forth in 40 C.F.R. 82, Subpart F. Applicable requirements include 40 CFR 82.154, 82.156, 82.161, 82.162, and 82.166.

[18 AAC 50.040(d), 8/15/02, 18 AAC 50.350(d)(1), 1/18/97]
[40 C.F.R. 82, Subpart F, 7/1/01]



**44.** **Good Air Pollution Control Practice.** The Permittee shall do the following for Source ID(s) 12 through 19, 21 through 25, and 27 through 37:

a. Perform regular maintenance considering the manufacturer's or the operator's maintenance procedures;

b. Keep records of any maintenance that would have a significant effect on emissions; the records may be kept in electronic format;

c. Keep a copy of either the manufacturer's or the operator's maintenance procedures.

[18 AAC 50.030 & 50.346(b)(2), 5/3/02 & 18 AAC 50.350(f)(2) & (3), 1/18/97]

**45.** **Dilution.** The Permittee shall not dilute emissions with air to comply with this permit. Monitoring shall consist of an annual certification that the Permittee does not dilute emissions to comply with this permit.

[18 AAC 50.045(a), 1/18/97]

**46.** **Reasonable Precautions to Prevent Fugitive Dust.** The Permittee shall take reasonable precautions to prevent particulate matter from being emitted into the ambient air when causing or permitting bulk materials to be handled, transported, or stored, or when engaging in an industrial activity or construction project. Monitoring shall consist of an annual certification that reasonable precautions were taken.

[18 AAC 50.346(c), 5/3/02; 18 AAC 50.045(d) & 50.335(g), 1/18/97 & 18 AAC 50.040(e), 7/2/00]

**47.** **Stack Injection.** The Permittee shall not release materials other than process emissions, products of combustion, or materials introduced to control pollutant emissions from a stack at a source constructed or modified after November 1, 1982, unless approved in writing by the Department. Monitoring shall consist of an annual certification that the Permittee does not conduct stack injection at the facility.

[18 AAC 50.055(g), 1/18/97]

**48.** **Open Burning.** The Permittee shall conduct any open burning at the facility in accordance with the requirements of 18 AAC 50.065. Monitoring shall consist of an annual certification that any open burning complied with 18 AAC 50.065.

[18 AAC 50.040(e), 7/21/01, 18 AAC 50.065, 7/21/01, 18 AAC 50.350(d)(1), 1/18/97]

**49.** **Air Pollution Prohibited.** No person may permit any emission which is injurious to human health or welfare, animal or plant life, or property, or which would unreasonably interfere with the enjoyment of life or property.

[18 AAC 50.346(a)(2), 5/3/02; 18 AAC 50.110, 5/26/72; 18 AAC 50.040(e), 7/2/00]

49.1 If emissions present a potential threat to human health or safety, the Permittee shall report any such emissions according to condition 66.

49.2 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 49.



49.3 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 49; or

b. the Department notifies the Permittee that it has found a violation of condition 49.

49.4 The Permittee shall keep records of

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 49; and

d. any corrective actions taken or planned for complaints attributable to emissions from the facility.

49.5 With each facility operating report required under condition 68, the Permittee shall include a brief summary report which must include

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.

49.6 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.

[18 AAC 50.346(a)(2) & 50.350(g) - (i), 5/3/02]

**50. Technology-Based Emission Standard.** If an unavoidable emergency, malfunction, or non-routine repair, as defined in 18 AAC 50.235, causes emissions in excess of a technology-based emission standard[8], the Permittee shall take all reasonable steps to minimize levels of emissions that exceed the standard. Excess emissions reporting under condition 66 requires information on the steps taken to minimize emissions. The report required under condition 66 is adequate monitoring for compliance under this condition.

[18 AAC 50.235(a) & 50.350(f)(3), 1/18/97]



**51. Permit Renewal.** To renew this permit, the Permittee shall submit an application under 18 AAC 50.335 no sooner than **May 19, 2007** and no later than **May 19, 2008.**

[18 AAC 50.335(a), 1/18/97]

[8] *Technology-based emission standard* means a best available control technology standard (BACT); a lowest achievable emission rate standard (LAER); a maximum achievable control technology standard established under 40 C.F.R. 63, Subpart B, adopted by reference in 18 AAC 50.040(c); a standard adopted by reference in 18 AAC 50.040(a) or (c); and any other similar standard for which the stringency of the standard is based on determinations of what is technologically feasible, considering relevant factors.

## *Section 10. General Source Testing and Monitoring Requirements*

**52. Requested Source Tests.** 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.

[18 AAC 50.220(a), 1/18/97 & 18 AAC 50.345(a) & (k), 5/3/02]

**53. Operating Conditions.** Unless otherwise specified by an applicable requirement or test method, the Permittee shall conduct source testing

[18 AAC 50.220(b), 1/18/97 & 18 AAC 50.350(g), 5/3/02]

53.1 at a point or points that characterize the actual discharge into the ambient air; and

53.2 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.

**54. Reference Test Methods.** The Permittee shall use the following as reference test methods when conducting source testing for compliance with this permit:

54.1 Source testing for compliance with requirements adopted by reference in 18 AAC 50.040(a) must be conducted in accordance with the methods and procedures specified in 40 C.F.R. 60.

[18 AAC 50.220(c)(1)(A) & 50.350(g), 5/3/02 & 18 AAC 50.040(a), 8/15/02]
[40 C.F.R. 60, 7/1/01]



54.2 Source testing for compliance with requirements adopted by reference in 18 AAC 50.040(b) must be conducted in accordance with the methods and procedures specified in 40 C.F.R. 61.

[18 AAC 50.040(b), 8/15/02; 18 AAC 50.220(c)(1)(B) & 50.350(g), 5/3/02]
[40 C.F.R. 61, 7/1/01]

54.3 Source testing for compliance with requirements adopted by reference in 18 AAC 50.040(c) must be conducted in accordance with the source test methods and procedures specified in 40 C.F.R. 63.

[18 AAC 50.040(c), 8/15/02, 18 AAC 50.220(c)(1)(C) & 50.350(g), 5/3/02]
[40 C.F.R. 63, 4/5/02]

54.4 Source testing for reduction in visibility through the exhaust effluent must be conducted in accordance with the procedures set out in Reference Method 9.

[18 AAC 50.030, 5/3/02; 18 AAC 50.220(c)(1)(D) & 50.350(g), 5/3/02]

54.5 Source testing for emissions of total particulate matter, sulfur compounds, nitrogen compounds, carbon monoxide, lead, volatile organic compounds, fluorides, sulfuric acid mist, municipal waste combustor organics, metals, and acid gases must be conducted in accordance with the methods and procedures specified in 40 C.F.R. 60, Appendix A.

[18 AAC 50.040(a)(4), 7/2/00; 18 AAC 50.220(c)(1)(E) & 50.350(g), 5/3/02]
[40 C.F.R. 60, Appendix A, 7/1/01]

54.6 Source testing for emissions of PM-10 must be conducted in accordance with the procedures specified in 40 C.F.R. 51, Appendix M, Method 201.

[`18 AAC 50.035(b)(2), 8/15/02; 18 AAC 50.220(c)(1)(F) & 50.350(g), 5/302]
[40 C.F.R. 51, Appendix M, 7/1/99]

54.7 Source testing for emissions of any contaminant may be determined using an alternative method approved by the Department in accordance with 40 C.F.R. 63 Appendix A, Method 301.

[18 AAC 50.040(c)(19), 8/15/02; 18 AAC 50.220(c)(2) & 50.350(g), 5/3/02]
[40 C.F.R. 63, Appendix A, Method 301, 4/5/02]

**55. Excess Air Requirements.** To determine compliance with this permit, standard exhaust gas volumes must include only the volume of gases formed from the theoretical combustion of the 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).

[18 AAC 50.220(c)(3), 1/18/97; 18 AAC 50.350(g) & 50.990(88), 5/3/02]

**56. Test Exemption.** The Permittee is not required to comply with conditions 58, 59 and 60 when the exhaust is observed for visible emissions.

[18 AAC 50.345(a), 5/3/02]

**57. 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.



[18 AAC 50.345(a) & (l), 5/3/02]

**58. Test Plans.** Except as provided in condition 56, 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 within 60 days after receiving a request under condition 52 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.

[18 AAC 50.345(a) & (m), 5/3/02]

**59. Test Notification.** Except as provided in condition 56, at least 10 days before conducting a source test, the Permittee shall give the Department written notice of the date and the time the source test will begin.

[18 AAC 50.345(a) & (n), 5/3/02]

**60. Test Reports.** Except as provided in condition 56, 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 62. If requested in writing by the Department, the Permittee must provide preliminary results in a shorter period of time specified by the Department.

[18 AAC 50.345(a) & (o), 5/3/02]

**61.** **Particulate Matter Calculations.** In source testing for compliance with the particulate matter standards in conditions 4 and 39, the three-hour average is determined using the average of three one-hour test runs.

[18 AAC 50.220(f), 1/18/97 & 18 AAC 50.350(g), 5/3/02]

## *Section 11. General Recordkeeping, Reporting, and Compliance Certification Requirements*

**62. Certification.** The Permittee shall certify all reports, compliance certifications, or other documents submitted to the Department and required under the permit by including the signature of a responsible official for the permitted facility 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 emission 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. When certifying a compliance certification, the official's signature must be notarized.

[18 AAC 50.205 and 50.350(b)(3), 1/18/97; and 18 AAC 50.345(a) & (j) and 50.350(j), 5/3/02]

**63. Submittals.** Unless otherwise directed by the Department or this permit, the Permittee shall send reports, compliance certifications, and other documents required by this permit to ADEC, Air Permits Program, 610 University Ave., Fairbanks, AK 99709-3643, ATTN: Compliance Technician.

[18 AAC 50.350(i), 5/3/02]

**64. Information Requests.** The Permittee shall furnish to the Department, within a reasonable time, any information 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.



[18 AAC 50.200 & 50.350(b)(3), 1/18/97; and 18 AAC 50.345(a) & (i) & 50.350(g) – (i), 5/3/02]

**65. Recordkeeping Requirements.** The Permittee shall keep all records required by this permit for at least five years after the date of collection, including:

[18 AAC 50.350(h), 5/3/02]
[40 CFR 60.7(f), Subpart A, 7/1/01]

65.1 copies of all reports and certifications submitted pursuant to this section of the permit; and

65.2 records of all monitoring required by this permit, and information about the monitoring including:

a. calibration and maintenance records, original strip chart or computer-based recordings for continuous monitoring instrumentation;

b. sampling dates and times of sampling or measurements;

c. the operating conditions that existed at the time of sampling or measurement;

d. the date analyses were performed;

e. the location where samples were taken;

f. the company or entity that performed the sampling and analyses;

g. the analytical techniques or methods used in the analyses; and

h. the results of the analyses.

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

66.1 Except as provided in condition 49, 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 nonroutine 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 of the end of the month in which the emissions or deviation occurs or is discovered, except as provided in conditions 66.1c(ii) and 66.1c(iii);

(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 66.1c(i); and

(iii) for failure to monitor, as required in other applicable conditions of this permit.

66.2 When reporting excess emissions, the Permittee must report using either the Department's on-line form, which can be found at www.state.ak.us/dec/dawq/aqm/eeform.pdf, or, if the Permittee prefers, the form contained in Section 17 of this permit. The Permittee must provide all information called for by the form.

66.3 When reporting a permit deviation, the Permittee must report using either the Department's on-line form, which can be found at www.state.ak.us/dec/dawq/aqm/eeform.pdf, or, if the Permittee prefers, the form contained in Section 17 of this permit. The Permittee must provide all information called for by the form.

66.4 If requested by the Department, the Permittee shall provide a more detailed written report as requested to follow up an excess emissions report.

[18 AAC 50.235(a)(2) & 50.240(c), 1/18/97; and 18 AAC 50.346(a)(3) & 50.350(i), 5/3/02

**67. NSPS and NESHAP Reports**. The Permittee shall:

67.1 attach to the facility operating report required by condition 68, copies of any NSPS and NESHAPs reports submitted to the U.S. Environmental Protection Agency (EPA) Region 10, unless copies have already been provided to the Department at the time submitted to EPA, and

67.2 upon request by the Department provide a copy of any EPA-granted waiver of the federal emission standards, record keeping, monitoring, performance testing, or reporting requirements, or approved custom monitoring schedules.

[18 AAC 50.040, 1/18/97; 18 AAC & 50.350(i)(2), 5/3/02; and 40 C.F.R. 60 & 61, 7/1/01]

**68. Operating Reports.** During the life of this permit, the Permittee shall submit to the Department an original and two copies of an operating report by April 30 for the period January 1 to March 31, by July 30 for the period April 1 to June 30, by October 30 for the period July 1 to September 30, and by February 14 for the period October 1 to December 31 of the previous year.

68.1 The operating report must include all information required to be in operating reports by other conditions of this permit.



68.2 If excess emissions or permit deviations that occurred during the reporting period are not reported under condition 68.1, 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 66 the Permittee may cite the date or dates of those reports.

68.3 The operating report must include a listing of visible emissions monitored under condition 26 which trigger additional testing or monitoring, whether or not the emissions monitored exceed an emission standard. The Permittee shall include in the report

a. the date that additional monitoring or testing was triggered;

b. the equipment involved;

c. the permit condition affected; and

d. the monitoring result which triggered the additional monitoring.

[18 AAC 50.346(b)(3), 5/3/02, 18 AAC 50.350(d)(4), 6/21/98, and 18 AAC 50.350(f)(3) & (i), 1/18/97]

**69. Annual Compliance Certification.** Each year by March 31, and for reporting periods following the effective date of this permit the Permittee shall compile and submit to the Department an original and two copies of an annual compliance certification report as follows:

[18 AAC 50.350(j), 5/3/02]

69.1 For each permit term and condition set forth in Section 4 through Section 11, including terms and conditions for monitoring, reporting, and recordkeeping:

[18 AAC 50.350(d)(4), 6/21/98]

a. certify the compliance status over the preceding calendar year consistent with the monitoring required by this permit;

b. state whether compliance is intermittent or continuous;

c. briefly describe each method used to determine the compliance status; and

d. notarize the responsible official's signature.

[18 AAC 50.205, 1/18/97 & 50.345(a) & (j), 5/3/02]

69.2 In addition, submit a copy of the report directly to the EPA-Region 10, Office of Air Quality, M/S OAQ-107, 1200 Sixth Avenue, Seattle, WA 98101.

[18 AAC 50.350(j), 5/3/02]

## *Section 12. Standard Conditions Not Otherwise Included in the Permit*

**70.** 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, except for those terms or conditions designated in the permit as not federally enforceable, the Clean Air Act, and is grounds for

70.1 an enforcement action;

70.2 permit termination, revocation and reissuance, or modification in accordance with AS 46.14.280; or

70.3 denial of an operating-permit renewal application.

[18 AAC 50.350(b)(3), 1/18/97 & 18 AAC 50.345(a) & (c), 5/3/02]

**71.** 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.

[18 AAC 50.350(b)(3), 1/18/97 & 18 AAC 50.345(a) & (d), 5/3/02]

**72.** 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.

[18 AAC 50.350(b)(3), 1/18/97 & 18 AAC 50.345(a) & (e), 5/3/02]



**73.** Compliance with permit terms and conditions is considered to be compliance with those requirements that are

73.1 included and specifically identified in the permit; or

73.2 determined in writing in the permit to be inapplicable.

[18 AAC 50.350(b)(3), 1/18/97 & 18 AAC 50.345(a) & (b), 5/3/02]

**74.** 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.

[18 AAC 50.350(b)(3), 1/18/97 & 18 AAC 50.345(a) & (f), 5/3/02]

**75.** The permit does not convey any property rights of any sort, nor any exclusive privilege.

[18 AAC 50.350(b)(3), 1/18/97 & 18 AAC 50.345(a) & (g), 5/3/02]

**76.** 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

76.1 enter upon the premises where a source subject to the permit is located or where records required by the permit are kept;

76.2 have access to and copy any records required by the permit;

76.3 inspect any facility, equipment, practices, or operations regulated by or referenced in the permit; and

76.4 sample or monitor substances or parameters to assure compliance with the permit or other applicable requirements.

[18 AAC 50.350(b)(3), 1/18/97 & 18 AAC 50.345(a) & (h), 5/3/02]

## Section 13. Permit As Shield from Inapplicable Requirements

In accordance with AS 46.14.290, and based on information supplied in the facility application, this section of the permit contains the requirements determined by the Department not to be applicable to the Gathering Center #1.

Table 5 identifies the sources that are not subject to the specified requirements at the time of permit issuance. Some of the requirements listed below may become applicable during the permit term due to an invoking event, even though the requirement is deemed inapplicable at the time of permit issuance.

**77.** If any of the requirements listed in Table 5 become applicable during the permit term, the Permittee shall comply with such requirements on a timely basis including but not limited to, providing appropriate notification to EPA, and apply for a construction permit and/or an operating permit revision, if necessary.

**Table 5 - Permit Shields Granted.**

| Non Applicable Requirements | Reason for non-applicability |
|---|---|
| **Gas-Fired Turbines GTRB-01-7000, GTRB-01-7001, GTRB-51-8002A, GTRB-51-8002B, GTRB-51-3204, GTRB-51-3304, GTRB-01-7704A, GTRB-01-7704B, GTRB-51-8001A, GTRB-51-8001B, and GTRB-51-8001C** | |
| 40 CFR 60 Subpart A – General Provisions §60.8(a) Performance Test **(Initial Performance Test Only)** 40 CFR 60 Subpart GG §60.335(b),(c)(1), (c)(3) – Test Methods and Procedures | Obsolete requirements. Completed as required. |
| 40 CFR 60 Subpart A – General Provisions §60.7(a)(1), (2), & (3) – Notification and Recordkeeping. **(Initial Notification Only)** | Obsolete requirements – completed as required. |
| §60.7(a)(4) – Notification and Recordkeeping | This requirement only applies to "existing facilities", as defined in 40 CFR 60.2. |
| 40 CFR 60 Subpart GG<br>§60.332(a)(1) – Standards for $NO_x$ | Standard applies to Electric Utility Stationary Gas Turbines as defined in subpart. Source is not an Electric Utility Stationary Gas Turbine as defined in Subpart GG. |
| 40 CFR 60 Subpart GG<br>§60.334(a) – Monitoring of Operations<br>§60.335(c)(2) – Test Methods and Procedures | Applies only to affected turbines equipped with water injection to control emissions of $NO_x$. Source is not equipped with water injection to control emissions of $NO_x$. |
| §60.334(b) – Monitoring of Operations (Fuel Nitrogen Only)<br>§60.335(a) – Test Methods and Procedures | EPA Region X waived fuel-bound nitrogen monitoring for NSPS affected stationary gas turbines operated by BPX (ref. Correspondence dated August 19, 1996). |
| **Gas-Fired Turbines GTRB-51-8001A, GTRB-51-8001B, and GTRB-51-8001C** | |
| 40 CFR 60 Subpart GG<br>§60.332(a) – Standards for $NO_x$<br>40 CFR 60 Subpart A – General Provisions §60.8(a) Performance Test ($NO_x$) | Turbines with a heat input at peak load less than or equal to 100 MMBtu/hr based on the lower heating value of the fuel that commenced construction prior to October 3, 1982 are exempt from §60.332(a) [§60.332(e)]. |
| **Gas-Fired Turbines GTRB-51-8002A and GTRB-51-8002B** | |
| All Potential Requirements | Equipment no longer in service. |

| Non Applicable Requirements | Reason for non-applicability |
|---|---|
| **Gas-Fired Heaters H-51-8002A and H-51-8002B** | |
| 40 CFR 60 Subpart D – Standards of Performance for Fossil Fuel-Fired Steam Generators | Units not classified as Fossil-Fuel-Fired Steam Generators, as defined in subpart. |
| 40 CFR 60 Subpart Da – Standards of Performance for Electric Utility Steam Generating Units | Units not classified as Electric Utility Steam Generating Units, as defined in subpart. |
| 40 CFR 60 Subpart Db – Standards of Performance for Industrial-Commercial-Institutional Steam Generating Units | Commenced construction prior to effective date of subpart (6/19/84). |
| 40 CFR 60 Subpart Dc – Standards of Performance for Small Industrial-Commercial-Institutional Steam Generating Units | Heat input capacities above threshold (100 MMBtu/hr or less, but greater than 10 MMBtu/hr). |
| **Gas-Fired Heaters B-01-0001, B-01-0002, B-01-0003, B-01-0004, B-01-0067, B-01-0068, and B-01-9920** | |
| 40 CFR 60 Subpart D | Heat input capacities below threshold (250 MMBtu/hr); and units not classified as Fossil-Fuel-Fired Steam Generators, as defined in subpart. |
| 40 CFR 60 Subpart Da | Heat input capacities below threshold (250 MMBtu/hr); and units not classified as Electric Utility Steam Generating Units, as defined in subpart. |
| 40 CFR 60 Subpart Db | Heat input capacities below threshold (100 MMBtu/hr). |
| **Gas-Fired Heaters B-01-0001, B-01-0002, B-01-0003, and B-01-0004** | |
| 40 CFR 60 Subpart Dc | Commenced construction prior to effective date of subpart (6/9/89). |
| **Gas-Fired Heaters B-01-0067 and B-01-0068** | |
| 40 CFR 60 Subpart Dc | Heat input capacities below threshold (10 MMBtu/hr). |
| **Gas-Fired Heater B-01-9920** | |
| 40 CFR 60 Subpart Dc -<br>§60.42c - Standard for Sulfur Dioxide ($SO_2$)<br>§60.43c - Standard for Particulate Matter (PM)<br>§60.44c - Compliance and Performance Test Methods and Procedures for $SO_2$<br>40 CFR 60 Subpart A - General Provisions<br>§60.8 - Performance Test<br>§60.45c - Compliance and Performance Test Methods and Procedures for PM<br>§60.46c - Emission Monitoring for $SO_2$<br>§60.47c - Emission Monitoring for PM<br>§60.48c(a)(4)-(f) & (h) - Reporting and Recordkeeping Requirements | Standards for $SO_2$ and PM and related performance test, monitoring, and reporting requirements are not applicable for affected facility fired on fuel gas. |
| §60.48c(a)(2)-(3) - Reporting and Recordkeeping Requirements | Facility is not subject to any requirements that limit the annual capacity factor for any fuel or mixture of fuels. Facility fires only fuel gas. |
| 40 CFR 60 Subpart A - General Provisions<br>§60.7(a)(1), (2) & (3) - Notification and Recordkeeping (**Initial notification only**)<br>40 CFR 60 Subpart Dc<br>§60.48c(a)(1) – Notifications | Obsolete requirements - completed as required |

| Non Applicable Requirements | Reason for non-applicability |
|---|---|
| §60.7(a)(4) - Notification and Recordkeeping | This requirement only applies to "existing facilities", as defined in 40 CFR 60.2. |
| §60.7(c) & (d) - Excess Emissions Reporting<br>40 CFR 60 Subpart Dc | The provisions of §60.7(c) & (d) apply only to New Source Performance Standards which require the installation of a continuous monitoring system (CMS) or monitoring device, as defined in §60.2; BPXA is not required to install a CMS or monitoring device per Subpart Dc. |
| **Liquid-Fired Emergency Turbine GTRB-51-8001** | |
| 40 CFR 60 Subpart GG<br>§60.332(a) – Standards for $NO_x$<br>40 CFR 60 Subpart A – General Provisions §60.8(a) Performance Test ($NO_x$) | Emergency gas turbines as defined in subpart are exempt from §60.332(a) standard for nitrogen oxides [ref §60.332(g)]. |
| 40 CFR 60 Subpart A – General Provisions § 60.7(a)(1), (2), and (3) – Notification and Recordkeeping (**Initial notification only**) | Obsolete requirements – completed as required. |
| §60.7(a)(4) – Notification and Recordkeeping | This requirement only applies to "existing facilities," as defined in 40 CFR 60.2. |
| **Flares FL-01-0001, FL-01-0002, FL-01-0003, FL-01-0004, FL-01-0005, FL-01-0006, FL-01-0007, FL-01-7001, FL-01-7002, and FL-01-9902,** | |
| 40 CFR 60 Subpart A – General Provisions<br>§60.18 – General Control Device Requirements | These flares are not control devices used to comply with applicable Subparts of 40 CFR 60 and 40 CFR 61. |
| **Storage Tanks T-101, T-103, and T-104** | |
| 40 CFR 60 Subparts K and Ka - Standards of Performance for Storage Vessels of Petroleum Liquids<br>40 CFR 60 Subpart Kb – Standards of Performance for Storage Vessels for Volatile Organic Liquid Storage Vessels (Including Petroleum Liquid Storage Vessels) | Commenced construction prior to effective dates of subparts K, Ka, and Kb. |
| **Storage Tanks T-108, T-110, and T-01-0057** | |
| 40 CFR 60 Subparts K and Ka - Standards of Performance for Storage Vessels of Petroleum Liquids<br>40 CFR 60 Subpart Kb – Standards of Performance for Storage Vessels for Volatile Organic Liquid Storage Vessels (Including Petroleum Liquid Storage Vessels) | Capacity less than 40,000 gal and not a petroleum liquid as defined in subpart K. Commenced construction prior to the effective dates of subparts Ka and Kb. |
| **Storage Tank T-01-0022** | |
| 40 CFR 60 Subparts K and Ka - Standards of Performance for Storage Vessels of Petroleum Liquids<br>40 CFR 60 Subpart Kb – Standards of Performance for Storage Vessels for Volatile Organic Liquid Storage Vessels (Including Petroleum Liquid Storage Vessels) | Does not contain petroleum liquids (subpart K). Commenced construction prior to the effective dates of subparts Ka and Kb. |

| Non Applicable Requirements | Reason for non-applicability |
|---|---|
| **Storage Tanks T-01-7009 and T-02-8001** | |
| 40 CFR 60 Subparts K and Ka - Standards of Performance for Storage Vessels of Petroleum Liquids<br>40 CFR 60 Subpart Kb – Standards of Performance for Storage Vessels for Volatile Organic Liquid Storage Vessels (Including Petroleum Liquid Storage Vessels) | Commenced construction after effective date of subpart K. Capacity less than 40,000 gal (subpart Ka). Commenced construction prior to effective date of subpart Kb. |
| **Storage Tanks T-51-8001, T-51-8003, and T-51-8007** | |
| 40 CFR 60 Subparts K and Ka - Standards of Performance for Storage Vessels of Petroleum Liquids<br>40 CFR 60 Subpart Kb – Standards of Performance for Storage Vessels for Volatile Organic Liquid Storage Vessels (Including Petroleum Liquid Storage Vessels) | Commenced construction after effective date of subpart K. Not a petroleum liquid as defined in subpart Ka. Commenced construction prior to effective date of subpart Kb. |
| **Storage Tank T-51-8002** | |
| 40 CFR 60 Subparts K and Ka - Standards of Performance for Storage Vessels of Petroleum Liquids<br>40 CFR 60 Subpart Kb – Standards of Performance for Storage Vessels for Volatile Organic Liquid Storage Vessels (Including Petroleum Liquid Storage Vessels) | Commenced construction after effective date of subpart K. Storage prior to custody transfer (subpart Ka). Commenced construction prior to effective date of subpart Kb. |
| **Storage Tanks T-01-7005, T-01-0008, T-01-0009, T-01-0011, T-01-0017, T-01-0018, T-01-0019, T-01-0020, T-01-0054, T-01-7002, T-01-7007, T-01-7010, T-01-7704, T-01-7705, T-01-7706, T-51-8005, T-51-8012A, T-51-8012B, TSMP-51-3206, and TSMP-51-3306** | |
| 40 CFR 60 Subparts K and Ka - Standards of Performance for Storage Vessels of Petroleum Liquids<br>40 CFR 60 Subpart Kb – Standards of Performance for Storage Vessels for Volatile Organic Liquid Storage Vessels (Including Petroleum Liquid Storage Vessels) | Capacity less than 10,000 gals (subparts K, Ka, and Kb). |
| **Storage Tanks T-01-7703 and T-51-8008** | |
| 40 CFR 60 Subpart Ka<br>40 CFR 60 Subpart A – General Provisions §60.7(a)(1), (2), & (3) – Notification and Recordkeeping. (**Initial notification only**) | Obsolete requirements – completed as required. |
| §60.7(a)(4) – Notification and Recordkeeping | This requirement only applies to “existing facilities”, as defined in 40 CFR 60.2. |
| 40 CFR 60 Subpart K | Vessels commenced construction after effective date of subpart (5/19/78). |
| 40 CFR 60 Subpart Kb | Vessels commenced construction prior to effective date of subpart (7/23/84). |
| **Storage Tank T-01-7703** | |
| 40 CFR 60 Subpart Ka §60.115a – Monitoring of Operations | Storage vessel equipped with a vapor recovery return or disposal system in accordance with the requirements of §60.112a(a)(3) is exempt from §60.115a - Monitoring of operations [ref. §60.115a(d)(2)]. |
| 40 CFR 60 Subpart A §60.8 – Performance Tests | There are no performance test requirements for closed vent systems. |

| Non Applicable Requirements | Reason for non-applicability |
|---|---|
| 40 CFR 60 Subpart Ka<br>§60.113a(a)(2)(iii) – Testing and Procedures | Obsolete requirement – completed as required. BPXA submitted an O&M plan to EPA for tank tag no. T-01-7703 on July 26, 1995. |
| 40 CFR 60 Subpart A – General Provisions<br>§60.18 – General Control Device Requirements | Source is affected by NSPS Subpart Ka. 40 CFR 60.18 only applies to "facilities covered by subparts referring to this section" [ref. §60.18(a)]; Subpart Ka does not reference §60.18. |
| **Storage Tank T-51-8008** | |
| 40 CFR 60 Subpart Ka<br>§60.112a – Standard for Volatile Organic Compounds (VOC) | TVP of petroleum liquid stored below §60.112a thresholds for equipment standards (1.5 psia) and §60.115a thresholds for monitoring of operations (1.0 psia). |
| §60.113a – Testing and procedures<br>§60.8 – Performance Tests<br>§60.114a – Alternative means of emission limitation<br>§60.115a – Monitoring of operations | |
| **Storage Tanks T-01-7703 and T-51-8008** | |
| §60.7(c) & (d) – Notification and Recordkeeping | The provisions of §60.7(c) & (d) apply only to New Source Performance Standards which require the installation of a continuous monitoring system (CMS) or monitoring device, as defined in §60.2; BPX is not required to install a CMS or monitoring device per Subpart Ka. |
| **Facility-Wide** | |
| 40 CFR 60 Subpart J – Standards of Performance for Petroleum Refineries<br>40 CFR 60 Subpart GGG – Standards of Performance for Equipment Leaks of VOC in Petroleum Refineries<br>40 CFR 60 Subpart QQQ – Standards of Performance for VOC Emissions from Petroleum Refinery Wastewater Systems | Facility does not meet the definition for a petroleum refinery. |
| 40 CFR 60 Subpart KKK – Standards of Performance for Equipment Leaks of VOC from Onshore Natural Gas Processing Plants | Facility is not a natural gas processing plant as defined in subpart. |
| 40 CFR 60 Subpart LLL – Standards of Performance for Onshore Natural Gas Processing Plants | Facility does not operate natural gas sweetening unit(s). |
| 40 CFR 61 Subpart A – General Provisions | Requirements only apply to sources subject to any provisions of 40 CFR 61. |
| 40 CFR 61 Subpart J – National Emission Standard for Equipment Leaks (Fugitive Emission Sources) of Benzene | No process components in benzene service, as defined by subpart (10 percent benzene by weight). |
| 40 CFR 61 Subpart M – National Emission Standard for Asbestos<br>§61.142 – Standard for Asbestos Mills | Facility is not an Asbestos Mill. |
| §61.143 – Standard for Roadways | Facility roadways not exposed to asbestos tailings or asbestos containing waste. |
| §61.144 – Standard for Manufacturing | Facility does not engage in any manufacturing operations using commercial asbestos. |

| Non Applicable Requirements | Reason for non-applicability |
|---|---|
| §61.146 – Standard for Spraying | Facility does not spray apply asbestos containing materials. |
| §61.147 – Standard for Fabricating | Facility does not engage in any fabricating operations using commercial asbestos. |
| §61.148 – Standard for Insulating Materials | Facility does not install or reinstall, on any facility component, insulation material containing commercial asbestos. |
| §61.149 – Standard for Waste Disposal for Asbestos Mills | Applies only to facilities subject to §61.142 (Asbestos Mills). |
| §61.151 – Standard for Inactive Waste Disposal Sites for Asbestos Mills and Manufacturing and Fabricating Operations | Applies only to those facilities subject to §§61.142; 61.144, or 61.147 (Asbestos Mills, manufacturing or fabricating). |
| §61.152 – Standard for Air-Cleaning | Facility does not use air cleaning equipment. |
| §61.153 – Standard for Reporting | No reporting requirements apply for sources subject to §61.145 (demolition and renovation) [ref §61.153(a)]. |
| §61.154 – Standard for Active Waste Disposal Sites | Facility not an active waste disposal site and does not receive asbestos containing waste material. |
| §61.155 – Standard for Inactive Waste Disposal Sites for Asbestos Mills and Manufacturing and Fabricating Operations | Facility does not process regulated asbestos containing material (RACM). |
| **Activities subject to 40 CFR 61 Subpart M – Standard for Demolition and Renovation (§61.145)** | |
| 40 CFR 61 Subpart A – General Provisions<br>§61.05(a) – Prohibited Activities<br>§61.07 – Application for Approval of Construction or Modification<br>§61.09 – Notification of Startup | Owners or operators of demolition and renovation operations are exempt from the requirements of §§61.05(a), 61.07, and 61.09 [ref. 40 CFR 61.145(a)(5)]. |
| §61.10 – Source Reporting and Waiver Request | Demolition and renovation operations exempt from §61.10(a) [ref. 40 CFR 61.153(b)]. |
| §61.13 – Emission Tests<br>§61.14 – Monitoring Requirements | Emission test or monitoring is not required under the standards for demolition and renovation [§61.145]. |
| **Facility-Wide** | |
| 40 CFR 61 Subpart V – National Emission Standard for Equipment Leaks ( Fugitive Emission Sources) | No process components in volatile hazardous air pollutant (VHAP) service, as defined by subpart (≥10 percent VHAP by weight). |
| 40 CFR 61 Subpart Y – National Emission Standard for Benzene Emissions from Benzene Storage Vessels | Facility does not operate storage vessels in benzene service. |
| 40 CFR 61 Subpart BB – National Emission Standard for Benzene emissions from Benzene Transfer Operations | Facility does not conduct benzene transfer operations. |
| 40 CFR 61 Subpart FF – National Emission Standard for Benzene Waste Operations | Facility does not conduct benzene waste operations. |
| 40 CFR 63 Subpart T – National Emission Standards for Halogenated Solvent Cleaning | Facility does not operate halogenated solvent cleaning machines. |
| 40 CFR 63 Subpart CC – National Emission Standards for Hazardous Air Pollutants from Petroleum Refineries | Facility does not meet the definition for a petroleum refinery. |
| 40 CFR 63 Subpart HH – National Emissions Standards for Hazardous Air Pollutants from Oil and Natural Gas Production Facilities | Facility is not a major source of HAPs and black oil exemption applies; facility exclusively processes, stores, or transfers "black oil" (defined in the final promulgated rule as |

| Non Applicable Requirements | Reason for non-applicability |
|---|---|
| | a petroleum liquid with an initial produced gas-to-oil ratio [GOR] less than 1,750 scf/bbl and an API gravity less than 40 degrees). |
| 40 CFR 63 Subpart HHH – National Emission Standards for Hazardous Air Pollutants for Natural Gas Transmission and Storage Facilities | Facility is not a major source of HAPs and does not transmit or store natural gas prior to entering the pipeline to a local distribution company or to a final end user. |
| 40 CFR 63 Subpart EEEE – National Emission Standard for Organic Liquid Distribution | Facility is not a major source of HAPs. |
| **All Storage Tanks** | |
| 40 CFR 63 Subpart OO – National Emission Standards for Tanks – Level 1 | Provisions only apply to tanks affected by 40 CFR 60, 61, or 63 that specifically reference 40 CFR 63 Subpart OO. |
| **Drain Systems** | |
| 40 CFR 63 Subpart RR – National Emission Standards for Individual Drain Systems | Provisions only apply to drain systems affected by 40 CFR 60, 61, or 63 that specifically reference 40 CFR 63 Subpart RR. |
| **All Storage Tanks** | |
| 40 CFR 63 Subpart SS – National Emission Standards for Closed Vent Systems | Provisions only apply to tanks affected by 40 CFR 60, 61, or 63 that specifically reference 40 CFR 63 Subpart SS. |
| **Oil-Water Separators** | |
| 40 CFR 63 Subpart VV – National Emission Standards for Oil-Water Separators and Organic-Water Separators | Provisions only apply to oil-water separators and organic-water separators affected by 40 CFR 60, 61, or 63 that specifically reference 40 CFR 63 Subpart VV. |
| **Facility-Wide** | |
| 40 CFR 63 Subpart A – General Provisions [except §63.1(b) and §63.10(b)(3)] | Requirements only apply to sources subject to any provision of 40 CFR 63. This facility is not subject to 40 CFR 63 Subpart A, except for the requirement to determine rule applicability (§63.1(b)) and to keep records of rule applicability determination (§63.10(b)(3)). |
| 40 CFR 64 – Compliance Assurance Monitoring | The facility does not operate a pollutant-specific emission unit that meets all of the general applicability criteria under 40 CFR 64.2(a). |
| 40 CFR 68 - Risk Management Programs [§112(r)] | "Naturally occurring hydrocarbon mixtures" (crude oil, condensate, natural gas and produced water) prior to entry into a petroleum refining process unit (NAICS code 32411) or a natural gas processing plant (NAICS code 211112) are exempt from the threshold determination. (See Final Rule exempting from threshold determination regulated flammable substances in naturally occurring hydrocarbon mixtures prior to initial processing, 63 FR 640 [January 6, 1998]). Less than 10,000 lbs. of other mixtures containing regulated flammable substances that meet the criteria for an NFPA rating of 4 for flammability are stored at the facility. Therefore, Gathering Center #1, a crude petroleum and natural gas production facility, (NAICS code 211111) does not process or store regulated flammable or toxic substances in excess of threshold quantities. |
| 40 CFR 82.1 Subpart A – Production and consumption controls | Facility does not produce, transform, destroy, import or export Class 1 or Group I or II substances or products. |
| 40 CFR 82.30 Subpart B – Servicing of Motor Vehicle Air Conditioners | Facility does not service motor vehicle air conditioners. |

| Non Applicable Requirements | Reason for non-applicability |
|---|---|
| 40 CFR 82.60 Subpart C – Ban on Nonessential Products containing Class I Substances and Ban on Nonessential Products containing or Manufactured with Class II Substances | Facility is not a manufacturer or distributor of Class I and II products or substances. |
| 40 CFR 82.80 Subpart D – Federal Procurement | Subpart applies only to Federal departments, agencies, and instrumentalities. |
| 40 CFR 82.100 Subpart E – The Labeling of Products Using Ozone-Depleting Substances | Facility is not a manufacturer or distributor of Class I and II products or substances. |
| 40 CFR 82.158 Subpart F – Recycling and Emission Reductions | Facility does not manufacture or import recovery and recycling equipment. |
| 40 CFR 82.160 Subpart F– Approved Equipment Testing Organizations | Facility does not contract equipment testing organizations to certify recovery and recycling equipment. |
| 40 CFR 82.164 Subpart F – Reclaimer Certification | Facility does not sell reclaimed refrigerant. |
| 40 CFR 82, Subpart F, Appendix C – Method for Testing Recovery Devices for Use With Small Appliances | Facility is not a third part entity that certifies recovery equipment. |
| 40 CFR 82, Subpart F, Appendix D- Standards for Becoming a Certifying Program for Technicians | Facility does not have a technician certification program. |
| 40 CFR 82 Subpart G – Significant New Alternatives Policy Program (40 CFR 82.174(a)) | Facility does not manufacture substitute chemicals or products for ozone-depleting compounds. |
| 40 CFR 82 Subpart H – Halon Emissions Reduction (40 CFR 82.270(a)) | Facility does not manufacture halon. |
| 18 AAC 50.201 – Ambient Air Quality Investigation | This requirement is not applicable until such time as the Department requests an ambient air quality investigation. |



[18 AAC 50.350(l), 1/18/97]

## *Section 14. Visible Emissions Forms*

### Visible Emissions Field Data Sheet

Certified Observer: ______________________

Company: ______________________

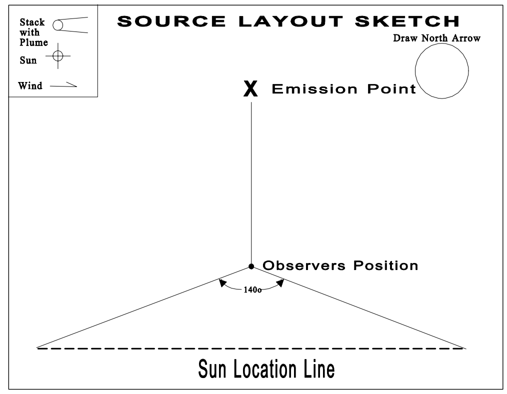
Location: ______________________

Test No.: ____________ Date: ____________

Source: ______________________

Operating Rate: ______________________

____________




| Clock Time | Initial | | | | Final |
|---|---|---|---|---|---|
| Observer location<br>Distance to discharge | | | | | |
| Direction from discharge | | | | | |
| Height of observer point | | | | | |
| Background description | | | | | |
| Weather conditions<br>Wind Direction | | | | | |
| Wind speed | | | | | |
| Ambient Temperature | | | | | |
| Relative humidity | | | | | |
| Sky conditions: (clear, overcast, % clouds, etc.) | | | | | |
| Plume description:<br>Color | | | | | |
| Distance visible | | | | | |
| Water droplet plume?<br>(Attached or detached?) | | | | | |
| Other information | | | | | |

## Visible Emissions Observation Record

Page ___ of ___

Company ________________ Certified Observer___________________

Test Number _________________________ Clock time_________________

| Date: | | Visibility reduction every 15 Seconds (Opacity) | | | | Steam Plume (check if applicable) | | Comments |
|---|---|---|---|---|---|---|---|---|
| Hr | Min | 0 | 15 | 30 | 45 | Attached | Detached | |
| | | | | | | | | |
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Additional information:

_____________________________________
Observer Signature

**Data Reduction:**
Duration of Observation Period (minutes) _______
Duration Required by Permit (minutes)_____
Number of Observations ___________
Highest Six-Minute Average Opacity (%)_____
Number of Observations exceeding 20% _________________
In compliance with three-minute aggregate opacity limit? (Yes or No) _______
In compliance with six-minute opacity limit? (Yes or No) _______

**Average Opacity Summary**

| Set Number | Time Start—End | Opacity | |
|---|---|---|---|
| | | Sum | Average |
| | | | |
| | | | |
| | | | |

## *Section 15. $SO_2$ Material Balance Calculation*

If a fuel shipment contains more than 0.75 percent sulfur by weight, calculate the three-hour exhaust concentration of $SO_2$ using the following equations:

A = 31,200 x [wt%$S_{fuel}$] = 31,200 x _______ = _______

B = 0.148 x [wt%$S_{fuel}$] = 0.148 x _______ = _______

C = 0.396 x [wt%$C_{fuel}$] = 0.396 x _______ = _______

D = 0.933 x [wt%$H_{fuel}$] = 0.933 x _______ = _______

E = B + C + D = _______ + _______ + _______ = _______

F = 20.9 – [vol%$_{dry}O_{2,\ exhaust}$] = 20.9 - _______ = _______

G = [vol%$_{dry}O_{2,\ exhaust}$] ÷ F = _______ ÷ _______ = _______

H = 1 + G = 1 + _______ = _______

I = E x H = _______ x _______ = _______

$SO_2$ concentration = A ÷ I = _______ ÷ _______ = _______ ppm



The wt%$S_{fuel}$, wt%$C_{fuel}$, and wt%$H_{fuel}$ are equal to the weight percents of sulfur, carbon, and hydrogen in the fuel. These percentages should total 100%.

The fuel weight percent (wt%) of sulfur is obtained pursuant to condition 5.2. The fuel weight percents of carbon and hydrogen are obtained from the fuel refiner.

The volume percent of oxygen in the exhaust (vol%$_{dry}O_{2,\ exhaust}$) 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%$S_{fuel}$** = 1.0%, then enter 1.0 into the equations, not 0.01, and if **vol%$_{dry}O_{2,\ exhaust}$** = 3.00%, then enter 3.00, not 0.03.

[18 AAC 50.346(c), 5/3/02]

## *Section 16. Emission Factors*

Use the emission factors in Table 6 to calculate the annual emission rates for conditions 6 and 7.

**Table 6 - Emission Factors**

| Equipment | $NO_X$ | CO | PM | $SO_2$ |
|---|---|---|---|---|
| **Turbines, Source ID(s) 1 through 11** | Allowable concentration or representative source test data if less than allowable concentration | Representative source test data if available. Otherwise use 0.082 lb/MMBtu<br><br>(AP-42, 4/00) | 0.014 lb/MMBtu (allowable) or representative source test data if less than allowable. | Actual monthly $H_2S$ concentration |
| **Heaters, Source ID(s) 12, 13, and 20** | Representative source test data or AP-42 emission factor if source test data are not applicable[1]. | Allowable emission rate or representative source test data if less than allowable rate (Source ID 20).<br><br>Allowable concentration or annual average of monthly CO concentrations recorded per condition 11.2 and annual average of monthly $O_2$ level recorded per condition 11.2 (fresh air firing mode for Source ID(s) 12 and 13) | N/A | N/A |

Notes: 1) If current AP-42 emission factor is greater than the allowable short-term emission rate, use the allowable emission rate.

## *Section 17. ADEC Notification Form*

Fax this form to: (907) 269-4589 Telephone: (907) 269-8888

**BP Exploration (Alaska) Inc.**
**Company Name**

**Gathering Center #1**
**Facility Name**

**Reason for notification:**

❑ **Excess Emissions**
*If you checked this box*
*Fill out section 1*

❑ **Other Deviation from Permit Condition**
*If you checked this box*
*fill out section 2*

When did you discover the Excess Emissions or Other Deviation:

Date:__/__/__ Time:__:__

### Section 1. Excess Emissions

**(a) Event Information** (Use 24-hour clock)**:**

| | **START** Time**:** (hr:min): | **END** Time: | **Duration** |
|---|---|---|---|
| Date: ________ | ________:________ | ________:________ | ________:________ |
| Date: ________ | ________:________ | ________:________ | ________:________ |
| | | **Total:** | ________:________ |

**(b) Cause of Event** (Check all that apply)**:**

❑ START UP ❑ UPSET CONDITION ❑ CONTROL EQUIPMENT
❑ SHUT DOWN ❑ SCHEDULED MAINTENANCE ❑ OTHER ________________

*Attach a detailed description of what happened, including the parameters or operating conditions exceeded.*



**(c) Sources Involved:**

*Identify each emission source involved in the event, using the same identification number and name as in the permit. List any control device or monitoring system affected by the event. Attach additional sheets as necessary.*

| Source ID No. | Source Name | Description | Control Device |
|---|---|---|---|
| ________ | ________ | ________ | ________ |
| ________ | ________ | ________ | ________ |

**(d) Emission Limit Potentially Exceeded**

*Identify each emission standard potentially exceeded during the event. Attach a list of ALL known or suspected injuries or health impacts. Identify what observation or data prompted this report. Attach additional sheets as necessary.*

| Permit Condition | Limit | Emissions Observed |
|---|---|---|
| ________ | ________ | ________ |
| ________ | ________ | ________ |

**(e) Excess Emission Reduction:**

*Attach a description of the measures taken to minimize and/or control emissions during the event.*

**(f) Corrective Actions:**

*Attach a description of corrective actions taken to restore the system to normal operation and to minimize or eliminate chances of a recurrence.*

### (g) 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

## Section 2. Other Permit Deviations

### (a) Sources Involved:

*Identify each emission source involved in the event, using the same identification number and name as in the permit. List any control device or monitoring system affected by the event. Attach additional sheets as necessary.*

| Source ID No. | Source Name | Description | Control Device |
|---|---|---|---|
| ____________ | __________________ | ________________________________ | __________________ |
| ____________ | __________________ | ________________________________ | __________________ |
| ____________ | __________________ | ________________________________ | __________________ |



### (b) Permit Condition Deviation:

*Identify each permit condition deviation or potential deviation. Attach additional sheets as necessary.*

| Permit Condition | Potential Deviation |
|---|---|
| ______________________________________ | __________________________________________ |
| ______________________________________ | __________________________________________ |
| ______________________________________ | __________________________________________ |

### (c) Corrective Actions:

*Attach a description of actions taken to correct the deviation or potential deviation and to prevent recurrence.*

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: Signature: Date:

**Alaska Department of Environmental Conservation**

**Air Permits Program**

**October 20, 2003**

**BP Exploration (Alaska) Inc**

**Gathering Center #1**

# STATEMENT OF BASIS

**of the terms and conditions for**

**Permit No. 182TVP01**



**Prepared by Kathy Stringham**
**and Robert Dolan**

**Revision 1 by Robert Dolan: February 17, 2004**

## INTRODUCTION

This document sets forth the statement of basis for the terms and conditions of Operating/Construction Permit No. 182TVP01.

**NOTE: During the Spring of 2003 House Bill 160 was passed which modified Alaska Statute 46.14 Air Quality Control. One of the modifications was to change terminology in the statute to make it identical to that used in the Federal Clean Air Act. In the following discussion GATHERING CENTER #1 STATIONARY SOURCE IDENTIFICATION this new terminology has been used so that the US EPA clearly understands ADEC's decision. The new terminology used is "stationary source" which replaces "facility" and "emission unit" which replaces "source". For purposes of this issue of aggregation alone, the terms "facility", "source", and "emission unit" have the meaning given by the federal definition and the new state statutory definition.**

**The remainder of the Permit and Statement of Basis was written before the Spring of 2003 and therefore uses the old terminology for "facility" and "source". The relevant definitions are:**

> **"Facility" means one or more structures, buildings, installations, or properties that are contiguous or adjacent and are owned or operated by the same person or by persons under common control and upon which a source or sources are located….**
>
> **"Source" means a device, process, activity, or equipment that causes, or could cause, a release of an air contaminant.**



## GATHERING CENTER #1 STATIONARY SOURCE IDENTIFICATION

Decision

Gathering Center #1 is located within the Prudhoe Bay Unit (PBU) on the North Slope of Alaska. The Department has determined the Gathering Center #1 (GC#1) stationary source is the surface structures with their associated emission units located on the GC#1 production pad and emissions units located on PBU well pads D, E, F, G, Y, and P. This determination applies to both the State's Title I and Title V air quality permitting programs.

Currently, the significant emission units on these pads for Title V purposes are those identified in Table 1 of permit no. 182TVP01. Additional insignificant emission units are located on the GC#1 production pad and the well pads, for instance the drill site manifold and wellhead enclosures are considered insignificant emission units in accordance with state regulation 18 AAC 50.335(s)(93).

Drill rigs and other temporary emission units will periodically operate at the well pads. Operation of such emission units will be considered temporary activities as long as they are not located and operated (continuously or intermittently) at the same well pad for more than 24 consecutive months. The 24-month clock is reset each time these emission units are moved from well pad to well pad, even if the new physical location is at a well pad governed by the same permit as the previous well pad location.

Discussion

In reaching this decision the Department relied on the definition of stationary source and the concept of common sense notion of plant as discussed in the preamble to the Federal PSD regulations, 45 Fed. Reg. 52693.

The following Federal definitions from 40 C.F.R. §51.166(b) have been adopted by the State statute and are relevant to this discussion.

> *Stationary source* means any building, structure, facility, or installation, which emits or may emit a regulated NSR pollutant.
>
> *Building, structure, facility, or installation* means all of the pollutant-emitting activities which belong to the same industrial grouping, are located on one or more contiguous or adjacent properties, and are under the control of the same person (or persons under common control)…. Pollutant-emitting activities shall be considered as part of the same industrial grouping if they belong to the same *Major Group* (i.e., which have the same two-digit code) as described in the *Standard Industrial classification Manual, 1972*….
>
> *Emission unit* means any part of a stationary source that emits or would have the potential to emit any regulated NSR pollutant….

Based on these definitions, the pollutant-emitting activities must meet three criteria to be included in the stationary source:



> 1) They must "belong to the same industrial grouping" as described by their SIC code. On the North Slope all the oilfield facilities have the same SIC code (1311 - Crude Petroleum and Natural Gas Production).
>
> 2) They must be "located on one or more contiguous or adjacent properties". This is a location based physical proximity requirement, as discussed in the preamble to the Federal PSD regulations, 45 Fed. Reg. 52676.
>
> 3) They must be "under the control of the same person". Within the PBU, BP Exploration (Alaska) Inc. (BPXA) is the operator and implements the decisions of the leaseholders via the Unit Operating Agreement.

Since items #1 and #3 above are self-evident no further discussion is needed.

Item #2 is the proximity criterion. To determine if the "property" or "properties" are located in close proximity, the relevant "property" must first be identified. The ADEC has determined that within the North Slope oilfields "property" is considered to be the improved surface areas (pads) because: 1) oil and gas production activities occur over vast areas in which there is limited surface disturbance, 2) land use permits must be obtained from the state for any surface disturbances, 3) the unique permafrost environment limits the extent of any surface disturbances, and 4) the pollutant emitting activities are located on the pads.

The PBU production centers and production wells are located on separate pads that are not contiguous (i.e., not touching). Thus the adjacency (i.e., the nearness or closeness) must be evaluated. To evaluate the adjacency of facilities, ADEC has used the concept of the common sense notion of a plant to inform proximity. In its analysis, ADEC has developed what is referred to as the "wagon wheel" model based on the production centers (hubs) and well pads (spokes). In this model of the plant, the well pads deliver raw materials (wellhead fluids consisting of crude oil, water, and hydrocarbon gases) to the production center for processing into finished product (sales oil) for delivery and custody transfer at Pump Station #1 of the Alyeska Pipeline Service Co.

The wagon wheel model for determining the stationary source for PSD and Title V applicability is currently used at other operating units on the North Slope such as Lisburne, Endicott, Kuparuk, and Alpine. The physical proximity (miles) varies widely at these sources and ADEC does not propose to establish a fixed value for this parameter. For instance, the longest spoke at Lisburne is drill site DS-L5, which is 6 miles from the production center (hub), at Endicott is drill site SDI, which is 3 miles from the production center (hub), at Kuparuk is drill site 3R, which is 3 miles from the CPF-3 production center (hub), and at Alpine is drill site DS2, which is 3 miles from the production center (hub). Within the Prudhoe Bay Unit, Z-Pad is 9 miles from the GC-2 production center (hub) and for the GC-1 stationary source Y-Pad is 4 miles from the production center (hub).

Which spokes will be attached to which hubs are, of course, determined by the flow of wellhead fluids (raw materials) and sales oil (finished crude). Whether a production well pad is part of a larger stationary source centered at a production center (hub) will be determined on a case-by-case basis taking into consideration site-specific factors such as the common sense notion of a plant, air impact overlaps/airshed, predictable emission impacts on hub, different operating units/control, service contracts with other operating units, ease of permit administration, and other case-specific factors deemed relevant. For instance, for a new unitized development the presumptive maximum radius of the spokes would be based on the original development project. Under the wagon wheel model, the associated infrastructure is considered a separate stationary source, unless co-located on the same pad or primarily associated with a hub or another stationary source.



<u>Rationale for Hub and Spoke Aggregation Model</u>

In the context of the Prudhoe Bay Unit, the relevant units of property are the pads on which the sources are situated, as distinguished from the surrounding tundra. Guidance developed by the State of Texas (Definition of Site, March 2002) for determining stationary sources located within producing oilfields states "For leased properties, 'property' is considered the surface area on which a stationary source has been placed, including any immediate area graded or cleared for stationary sources."

Why consider the production centers (hubs) along with their associated production well pads (spokes) as the basic stationary source or production plant for the PBU?

> 1) *Proximity.* The primary function of the production centers at the PBU (GC-1, GC-2, GC-3, FS-1, FS-2, FS-3, and Lisburne) is separation and processing of three-phase well fluids (oil, gas, and water) into sales-quality crude oil for delivery to the Trans-Alaska Pipeline System at Pump Station #1. Each production center is capable of performing this function independently of the other production centers. For example, if FS-2 were shutdown for maintenance, FS-1, FS-3, GC-1, GC-2, GC-3, and Lisburne would continue to process oil, gas, and water without adverse impact. Grouping the well pads with their

respective production centers maintains the important role of proximity in aggregation decisions.

2) *Common Sense Notion of Plant.* In the preamble to the PSD regulations of 1980 EPA (45 Fed. Reg. 52693) emphasized the importance of a "common sense" notion of source for the PSD program as follows:

> In EPA's view, the December opinion of the court in Alabama Power sets the following boundaries on the definition for PSD purposes of the component terms of "source"; 1) it must carry out reasonably the purposes of PSD, 2) it must approximate a common sense notion of "plant", and 3) it must avoid aggregating pollutant-emitting activities that as a group would not fit within the ordinary meaning of "building," "structure," "facility," or "installation."

Due to the nature of the oil and gas extraction business, facilities must be scattered across the resource area creating duplicate facilities performing identical functions. Well production pads must be dispersed evenly across the unit so that all the leases can be accessed. Likewise, production centers must be scattered since they act as collection points of the raw materials brought to the surface at the well pads. The hub and spoke production model develops naturally from the logistics of the business.

Within this conceptual framework, ADEC determines the plant to be the well production pads that extract the raw materials (wellhead fluids) from the subsurface and deliver them to the factory (production center) for processing into finished product (crude oil for sales) and waste products (water and gas for underground disposal). Wellhead facilities and separation facilities cannot exist without each other and constitute a complete production plant.



3) *Reasonable Permit Administration.* This approach allows ADEC more feasible permit administration with comparable environmental benefits. The benefit of going beyond the reasonably scaled wagon wheel approach for evaluating emission effects on other facilities is not apparent. Finally, previous permitting actions by ADEC at Kuparuk, Lisburne, Endicott, and Alpine support the determined stationary sources using the hub and spoke model. The facilities within the PBU would then be treated the same as these other operating units.

Other Models of Aggregation Discussed

There were two other questions considered to determine the appropriate stationary sources for permitting purposes at the PBU. First, should the entire PBU be the stationary source? Second, should each individual pad with its emitting units be considered a separate stationary source? Both of these potential permitting approaches were evaluated and rejected for reasons discussed below and the wagon wheel approach was accepted as being reasonable decision making.

1) *Prudhoe Bay Unit ≠ Stationary Source.* The PBU is made up of the oil leases that overlie the Prudhoe Bay Permo-Triassic Reservoir and covers roughly 300 square miles. To consider all the facilities located therein as a single stationary source severely stretches the concept of proximity. The ADEC does not believe that the leases and operating units constructed from these leases is the proper focus of a regulatory program

concerned with air emissions. The leases and unit agreement pertain to subsurface development and long-term reservoir management to maximize economic gain for the leaseholders and lessor. If the Prudhoe Bay operating unit were to be determined the relevant facility for aggregation, then there is no logical reason to stop at the boundaries of the PBU since contiguous operating units (i.e. Lisburne, Endicott, Milne, Northstar, and Pt. McIntyre) are also under the common control of BPXA.

Should pipeline connections be used to determine the appropriate stationary source? The ADEC does not believe this is a deciding factor because in the oil and gas industry pipelines connect everything. Pipelines are used throughout the operating unit as the preferred method for transferring fluids between facilities. To only consider the connectivity of operations via pipelines to determine proximity and to not also consider the concept of a common sense notion of a plant would result in one stationary source extending from the North Slope oil fields all the way to the Valdez Marine Terminal.

The complexity of administering (government) and operating (industry) a stationary source as large as the PBU without clear corresponding environmental benefit argues against this approach. Some of the identified problems are:

a) Netting analyses conducted over such a large stationary source could lead to avoiding all PSD reviews.

b) De-bottlenecking analyses would be more difficult; judgment calls about how far out from the equipment modification would become more complicated.



c) Tracking cause and effect of activities within the unit would be difficult; calculation of associated emission effects would become more complicated.

d) Permit maintenance burden would be greater; both Title I and Title V permits would be in a constant state of revision.

e) Scope of review and analysis could discourage discrete facility upgrades. If ADEC were required to evaluate all air-related issues across the entire PBU at the same time, agency resources could be overwhelmed resulting in permitting delays.

Finally, there is no precedent for defining such a large stationary source, either the size of the PBU, the size of the contiguous North Slope oil fields operated by BPXA, or the size of all the current and future North Slope facilities and the transportation corridor to the deep water port of Valdez.

2) *Individual Pad ≠ Stationary Source*. Treating each individual pad and the emission units located on it as a stationary source is the current permitting practice for PBU. This practice does not conform to the court decision in the Alabama Power case concerning the definition of source and its component terms for PSD purposes.

a) *It must carry out reasonably the purposes of PSD*. Permitting individual sources does not adequately serve the purposes of PSD when major projects that contribute to the production process and emissions can be located on well pads but avoid PSD review. The primary purpose of PSD review being to maintain air quality within the applicable increments.

b) *It must approximate a common sense notion of plant*. The complete production process defining the plant that starts at the wellhead and ends at the sales oil line outlet from the production center is ignored.

c) *It must avoid aggregating pollutant-emitting activities that as a group would not fit within the ordinary meaning of "building", "structure", "facility", or "installation"*. Permitting individual pollutant-emitting activities does completely avoid aggregating those activities that do not fit the ordinary meaning of "facility".

Finally, using the wagon wheel approach for determining the appropriate stationary sources at PBU will ensure permitting consistency with the other operating units on the North Slope.

Status of Support Facilities at PBU

The services that support facilities provide (e.g., Seawater Treatment Plant, Grind & Inject, Base Operations Center, Central Power Station, etc.) are spread over the entire PBU (with six hubs) and other operating units such as Kuparuk, Lisburne, and Endicott with no one hub receiving a majority of the support provided. When these services have been co-located on a pad with another stationary source, they have been aggregated as in the case of the Crude Oil Topping Unit with PBOC/MCC and the Seawater Injection Plant West with Gathering Center #1. The purposes the support facilities serve are secondary to the function of the production hubs. In addition, some of the support facilities (Base Operations Center, Central Power Station, and Prudhoe Bay Operations Center/Main Construction Camp) only exist because of the remote location of the North Slope oilfields and are not inherent to oil and gas production. The service infrastructure has different purposes and, therefore, these activities are considered separate stationary sources.



The ADEC does propose combining two of the separate support facilities as part of this review of stationary sources operating at PBU. The ADEC has determined the Central Gas Facility (CGF) and the Central Compressor Plant (CCP) to be a single stationary source (the Gas Plant) for purpose of Title I and Title V permitting for the following reasons:

1) Physical proximity - the two facilities are located ¼ of a mile from each other.

2) Common sense notion of a plant - these two facilities constitute the gas handling plant. The raw material (low pressure high molecular weight gas) is delivered to CGF from the hubs for removal of miscible inject/natural gas liquids and pressurization (to intermediate pressure) for distribution, the vast majority of which is delivered to the Central Compressor Plant for additional pressurization. This final product (high pressure low molecular weight gas) is then distributed to injection wells nearby CCP for ultimate disposal/storage underground.

3) These two facilities were originally permitted as a single stationary source but were disaggregated during the late 1980s.

Satellite Field Development

In the context of the North Slope, satellite oilfields are usually small oil reservoirs located near the established oilfields and may be economically developed in the future using excess capacity at the existing production centers. Although at this time there are no satellite oilfields delivering wellhead fluids to any PBU production centers, there may be some in the future. Whether these facilities will become part of an existing stationary source such as GC-1 will be evaluated on a case-by-case basis using the wagon wheel model discussed in this document with primary focus on proximity and the common sense notion of a plant.

Current examples of satellite fields are Tarn and Meltwater located to the west of Kuparuk (15 and 25 miles respectively) that deliver wellhead fluids to Central Production Facility #2 for processing into sales oil. In this case, emitting units at Tarn and Meltwater have not been added to the CPF#2 stationary source but were determined to be separate sources primarily based on proximity.

To encourage use of existing emission units at production hubs rather than the construction of additional emission units at satellite developments, production well pads created after the issuance of this permit will be evaluated on a case-by-case basis as follows.

1) Production well pads and their emission units that lie within the original development project surface area are presumed to be part of the existing hub stationary source to which they deliver well fluids unless compelling reasons justify their exclusion.

2) Production well pads and their emission units that lie outside the original development project surface area are presumed NOT to be part of the existing hub stationary source to which they deliver well fluids unless compelling reasons justify their inclusion.



3) For existing stationary sources, such as Alpine, Endicott, Northstar, and Badami that do not have an established original development project surface area because they consist of only one or two production well pads other factors will need to be considered when determining whether the well pad and its emission unit should become part of the existing stationary source.

Gathering Center #1 Description

The facility is operated by BPXA and BPXA is the Permittee for the facility's operating permit. The SIC code for this facility is 1311 – Crude Petroleum and Natural Gas Production. The NAICS code for the facility is 211111.

BPXA's Gathering Center #1 is an existing oil and gas production facility which consists of two GE Frame 5 natural gas-fired combustion turbines, four Cooper RB211 natural gas-fired combustion turbines (two of which are out of service), two Sulzer S3 natural gas-fired combustion turbines, three Ruston TA2500 natural gas-fired combustion turbines, two Econotherm natural gas-fired heaters, four Cleaver Brooks natural gas-fired heaters (with dual fuel capability), two BS&B natural gas-fired triethylene glycol regenerators, one Smith natural gas-fired triethylene glycol regeneration reboiler, two 550 kW Caterpillar liquid fuel-fired emergency electric generators, one 550 kW Detroit Diesel liquid fuel-fired emergency electric generator, one 280 hp Detroit Diesel liquid fuel-fired emergency firewater pump, one 2600 kW

Detroit Diesel liquid fuel-fired emergency electric generator, one Allison 5000 hp emergency liquid fuel-fired combustion turbine, nine vertical flares, and two horizontal flares. The Well Pads D, E, F, G, Y, and P are currently included in the major stationary source called Gathering Center 1 although at this time no significant sources are located on these pads.

Section 1 of Operating/Construction Permit No. 182TVP01 contains information on the facility as provided in the Title V operating permit application.

Gathering Center #1 processes crude oil production fluids received from various crude oil accumulations located on the North Slope of Alaska, including (but not limited to) Well Pads D, E, F, G, Y, P, and various pads from Gathering Centers 2 and 3 of the Western Operating Area. Gathering Center #1 can process more than 300,000 barrels of crude oil per day and 2.5 billion standard cubic feet of gas. The production fluids consist mainly of crude oil, hydrocarbon gas, and water. The crude oil is processed to remove hydrocarbon gas and water in order to meet specific crude oil specifications prior to transporting via the Trans Alaska Pipeline to Valdez, Alaska. The hydrocarbon gas is dehydrated and compressed for reinjection into the reservoir or used as fuel. Water is processed to remove entrained crude oil before injection into disposal or injector wells. The energy required to support operations comes primarily from the combustion of produced hydrocarbon gas that also supplies the Central Power Station.

Production/Injection wells are typically grouped together on a gravel pad with their well chokes and well testing equipment enclosed in modules. This collection of equipment on the gravel pad is called a wellpad. Production fluids from these wells are often commingled into common carrying lines at these wells that then flow to Gathering Center #1 for processing. Additionally, fluids (seawater, produced water, enhanced oil recovery fluids, etc.) can be routed to the wells for diversion into injection wells. As the need arises, mobile equipment, i.e. drilling rigs, are used at the wellpad to either service an existing well or drill a new well. This equipment is rarely needed on site for more than 12 months.



The production fluids that enter Gathering Center #1 are treated to remove gas and water. There are four stages of separation to remove gas: High Pressure (HP), Intermediate Pressure (IP), Low Pressure (LP) (Slugcatcher), and LP (Third Stage). These vessels operate at progressively lower pressures to minimize gas compression requirements while removing the hydrocarbon gases from the crude oil. Water is removed from the LP (Slugcatcher) and dehydrator. To improve the crude oil and water separation process, the liquid production fluids are heated downstream of the low pressure separator. After the crude oil and water separation process, the crude oil from the third stage separator is cooled to meet custody transfer requirements at the Trans Alaska Pipeline System (TAPS) Pump Station Number 1 (PS-1) owned and operated by Alyeska Pipeline Service Company.

The hydrocarbon gas, which is removed from the IP and LP separators, is compressed by gas compressors and combined with gas removed from the HP separator. The combined hydrocarbon gas is then processed in the Triethylene Glycol (TEG) Dehydration Unit to remove water vapor, thereby preventing the formation of hydrates upon further gas cooling and dehydration. Gases that are flashed or stripped in the TEG Dehydration Unit's Regenerator are recovered and recycled back to the process (they are not vented to atmosphere). A small portion of dehydrated/stripped hydrocarbon gas is used for fuel and gas lift injection and the remaining dehydrated gas is shipped to Central Gas Facility (CGF) and cooled to condense and remove butane and heavier hydrocarbons that are blended back into the crude oil stream before shipment to PS-1. The hydrocarbon gas is further compressed in the CGF gas injection compressors for re-injection into the reservoir.

Produced water is collected and treated to remove any entrained crude oil. Currently, the treated water is pumped into disposal wells located at Gathering Center #1 or injected back into the production reservoir on the well pads.

There are a number of emergency systems employed at Gathering Center #1. Emergency generators provide electrical power should primary electrical service be lost. The emergency power is typically used to drive process safety and life support systems. Liquid driven emergency fire water pumps provide back-up fire water supply in the event electrical power is lost to the primary electrically driven fire water pump and the electric jockey pumps.

An emergency flare system is used to safely dispose of hydrocarbon gases vented from process equipment to either prevent over-pressure due to process upset (unavoidable emergencies or malfunctions), process equipment startups or shutdowns, or to de-pressure for nonroutine repair purposes.

## SOURCE INVENTORY AND DESCRIPTION

Table 1 of Operating/Construction Permit No. 182TVP01 contains information on the sources at the facility as provided in the application. Table 1 describes the sources regulated by the permit. The table is provided for information and identification purposes only. Specifically, the source rating/size provided in the table does not create an enforceable limit.



## EMISSIONS

A summary of the potential to emit (PTE)[9] from Gathering Center #1 is shown in the table below.

**Table A - Emissions Summary, in Tons Per Year (TPY)**

| Pollutant | $NO_x$ | CO | PM-10 | $SO_2$ | VOC | HAPs | Total |
|---|---|---|---|---|---|---|---|
| PTE | 4,912 | 1,374 | 107 | 48 | 44 | 22 | 6,507 |
| Assessable PTE | 4,912 | 1,374 | 107 | 48 | 44 | 0 | 6,485 |

The assessable PTE listed under condition 1 is the sum of the emissions of each individual regulated air contaminant for which the facility has the potential to emit quantities greater than 10 tpy. The emissions listed in Table A are estimates that are for informational use only. The listing of the emissions does not create an enforceable limit to the facility. The difference

[9] *Potential to Emit or PTE* means the maximum quantity of a release of an air contaminant, considering a facility's physical or operational design, based on continual operation of all sources with the facility for 24 hours a day, 365 days a year, reduced by the effect of pollution control equipment and approved state or federal limitations on the capacity of the facility's sources or the facility to emit an air contaminant, including limitations such as restrictions on hours or rate of operation and type or amount of material combusted, stored, or processed...as defined in AS 46.14.990(21), Effective 1/18/97

between the Total PTE (6,507 TPY) in Table A above and the Total Assessable PTE value in condition 1.1 (6,485 TPY) is attributable to the 22 TPY of HAPs which is already accounted for in the value for VOCs.

In a letter to BPXA, dated Aug 29, 1997, EPA made administrative revisions to PSD-X80-09, PSD-X81-01, and PSD-X81-13. These revisions changed the $NO_x$, CO, PM, and $SO_2$ from the emission figures given in Permit Number 9673-AA003, Amendment #1.

Hazardous Air Pollutants (HAPS) were calculated using GRI-HAPCalc Version 3.01 software and AP-42 emission factors. Each individual HAP has a PTE less than 10 TPY; the aggregated HAP total is 22 TPY. The highest individual HAP is formaldehyde at 5.0 TPY.

## BASIS FOR REQUIRING AN OPERATING PERMIT

Section 2 of Operating/Construction Permit No. 182TVP01 includes a description of the regulatory classifications of Gathering Center #1. This facility is classified as a Prevention of Significant Deterioration (PSD) Major Facility, as defined in 18 AAC 50.300(c)(1), because it has the potential to emit more than 250 TPY or more of a regulated air contaminant in an area classified as attainment or unclassifiable. As defined by 18 AAC 50.300(b)(2), Gathering Center #1 is a facility containing fuel burning equipment with a rated capacity of 100 million Btu per hour or more. As defined by 18 AAC 50.325(b)(1), Gathering Center #1 is a facility that emits or has the potential to emit 100 TPY or more of a regulated air contaminant. As defined by 18 AAC 50.325(b)(3), Gathering Center #1 is a facility containing a source subject to the standards adopted by reference in 18 AAC 50.040(a)(1), 18 AAC 50.040(a)(2)(D), 18 AAC 50.040(a)(2)(L), and 18 AAC 50.040(a)(2)(V). As defined by 18 AAC 50.325(c), Gathering Center #1 is a facility described in 18 AAC 50.300(b)-(e), therefore, it is within the category of facilities subject to AS 46.14.130(b)(4).



Gathering Center #1 is classified as a "minor HACs facility" for Title V purposes and in addition there are no NESHAPs (MACT) standards applicable to the facility at this time.

Alaska regulations require operating permit applications to include identification of "regulated sources." As applied to Gathering Center #1, the state regulations require a description of:

⇒ Each source regulated by a standard in 18 AAC 50.055, Industrial Processes and Fuel Burning Equipment, under 18 AAC 50.335(e)(4)(C);

⇒ Each source subject to a standard adopted by reference in 18 AAC 50.040 under 18 AAC 50.335(e)(2); and

⇒ Sources subject to requirements in an existing department permit 18 AAC 50.335(e)(5).

The emission sources at Gathering Center #1 classified as "regulated sources" according to the above department regulations are listed in Table 1 of Operating Permit No. 182TVP01.

# CURRENT AIR QUALITY PERMITS

## Previous Air Quality Permit to Operate

The most recent permit issued for this facility is Permit-to-Operate number 9673-AA003, as amended through January 16, 1997. This permit-to-operate includes all previously approved construction authorizations issued through January 16, 1997 for the facility. In addition, EPA Prevention of Significant Deterioration (PSD) permit numbers PSD-X80-09, PSD-X81-01, and PSD-X81-13, as amended through August 29, 1997, contain specific BACT requirements for the facility. All facility-specific requirements established in these previous permits are included in the new operating permit as described in Table B.

## Construction Permits

No construction permits have been issued for this facility after January 18, 1997 (the effective date of the new divided operating and construction permitting programs).

## Title V Operating Permit Application History

The owner or operator submitted an application on November 26, 1997.

The owner or operator amended this application on December 11, 2002.

# COMPLIANCE HISTORY



The facility has operated at its current location since 1978. A review of the state's compliance database indicates that for the years 1999-2002 all of the facility operating reports (except for the latest quarterly report dated 7/29/02) have been reviewed by ADEC staff and show the facility to be in compliance. The last facility inspection by ADEC staff conducted January 29, 2001 reported no instances of non-compliance. In addition, a review of the excess emissions database for the years 1999-2002 indicate a total of 13 black smoke events lasting just over 9 hours total duration. Only two of the black smoke events lasted greater than one hour in duration. All black smoke events were associated with the flares and resulted from production startups, shutdowns, or upsets.

# FACILITY-SPECIFIC REQUIREMENTS CARRIED FORWARD

State of Alaska regulations in 18 AAC 50.350(d)(1)(D) require that an operating permit include each facility-specific requirement established in a prior operating permit. Table B below lists the operating permit conditions that established a facility-specific requirement in Permit No. 9673-AA003, Amendment #1 and the new conditions in Operating/Construction Permit No. 182TVP01 that carries the old requirement into the new permit.

**Table B - Comparison of Pre-January 18, 1997 Permit No. 9673-AA003, Amendment #1 Conditions to Operating Permit No. 182TVP01 Conditions[10]**

[10] This table does not include all standard and general conditions

| Permit No. 9673-AA003, Amendment #1 Condition Number | Description of Requirement | Permit No. 182TVP01 Condition Number | How condition was revised |
|---|---|---|---|
| 2 and Exhibit B | Comply with the most stringent of applicable emission standards | 3, 4, 5, 6, and 7 | The Alaska SIP limits have been carried forward with amendments as listed in 18 AAC 50 dated 5/3/02.<br><br>Other limits have been carried forward without change or have been corrected. BACT limits are from EPA PSD permits PSD-X80-09 (PSD II) PSD-X81-01 (PSD III), and PSD-X81-13 (PSD IV) as revised 8/29/97. |
| 5 | Operate Source ID(s) 21 through 26 not more than 200 hours per unit per year. | 9 | No change. |
| 6 | Operating time limit for Source Tag No. 86072 | None | Source removed from facility. Condition removed. |
| 7 | Operate Source ID(s) 12 and 13 in fresh-air firing mode not more than a combined total of 8900 hours per year and only during shutdown of Source IDs 3 and 4. | 9 | Removed clause regarding operation only during shutdown of Source ID(s) 3 and 4. These units have been removed from service so there is no longer a need to include the clause. |
| 8 | Operate Source ID(s) 12 and 13 in waste heat recovery mode not more than a cumulative total of 5600 hours per year. | none | Source ID(s) 3 and 4 removed from service and thus there is no waste heat recovery mode of operation for Source ID(s) 12 and 13. |
| 9 | Operate Source ID(s) 3 and 4 not more than a combined total of 5600 hours per year. | none | Source ID(s) 3 and 4 removed from service. |
| 10 | Operate Source ID(s) 9 through 11 not more than a combined total of 5600 hours per year. | 9 | No change. |
| 15 and Exhibits B and C | Limit fuel gas $H_2S$ and conduct a monthly test of the fuel gas to determine the $H_2S$ as described in Exhibit C. | 13 | No change. |
| 16 and Exhibit C | Install, maintain, and operate | 11 | No change. |

| Permit No. 9673-AA003, Amendment #1 Condition Number | Description of Requirement | Permit No. 182TVP01 Condition Number | How condition was revised |
|---|---|---|---|
| | instrumentation described in Exhibit C for Source IDs 12 and 13 to measure exhaust gas CO and $O_2$. | | |
| 21 and Exhibit D | Permittee shall submit quarterly facility operating reports…. | 68 | Same requirement. |
| 17 and Exhibit C | Install, maintain and operate a continuous monitoring system for Source IDs 1,2, and 5 through 11 to measure fuel consumption or estimate the total volume of fuel consumed by other means. Condition gives the option of obtaining the information without installing a CMS. | 12 | No change. |
| Exhibit A | Source ID 4 is limited to operation at 29,100 hp | none | Source ID 4 removed from service. |
| Item 2, Exhibit D | Permittee shall report the number of hours of operation for each source, the quantity of fuel burned in each group, and the total quantity of fuel burned at the facility for each month. | 10 and 12.1 | No change, except hours of operation monitoring no longer required for flares. |
| Exhibit C | Monitoring requirements for fuel gas and liquid fuel | 5 | No change |



## REVISIONS MADE TO AIR QUALITY PERMIT-TO-OPERATE 9673-AA003

BPXA submitted a construction permit application under provisions of 18 AAC 50.305(a)(3) requesting modifications of the terms and conditions of former Operating Permit 9673-AA003. BPXA submitted the application to revise or rescind existing permit conditions that are either: 1) in error; 2) do not correctly reflect applicable requirements; 3) are out dated; or 4) are otherwise inappropriate. The current permit was issued under former regulations 18 AAC50.400. Under the provisions of 18 AAC 50.305(a)(3), the owner or operator of a facility may request Department approval in a construction permit to revise or rescind conditions of a permit issued under former 18 AAC 50.400.

On November 26, 1997 BPXA submitted a construction permit application requesting revisions to operating permit No. 9673-AA003 for GC #1, along with the Title V operating permit application for the facility. BPXA proposed that terms and conditions in the old operating permit be updated and made identical with the PSD permits, numbers PSD-X79-05 (PSD I), PSD-X80-09 (PSD II), PSD-X81-01 (PSD III), and PSD-X81-13 (PSD IV), recently issued by the EPA.

EPA Region 10 issued PSD permits to BPXA [actually Atlantic Richfield and Sohio Petroleum Companies, the field operators at that time] for construction of new equipment at eight Prudhoe Bay facilities. BPXA has worked with EPA to clarify and revise emission limits in the EPA PSD permits. ADEC has been copied on all correspondence with Region 10 in this regard. This effort resulted in issuance by EPA on August 29, 1997, of revisions to the EPA PSD permits. A copy of the permit revisions is included with the Permittee's application. The primary revisions include identification of specific equipment and tag number, apportionment of field-wide ton per year limits to facility–specific equipment group limits, and updating emission limits based solely on AP-42 factors to the values in the edition of AP-42 that were current in 1997.

The construction permit application requests that each current EPA BACT emission limit be established as the current limit in the ADEC permit for the facility.

The permit revision process with EPA was similar to this request in that approval was not sought for any new construction or modification. As part of the EPA process, BPXA demonstrated to Region 10 that on a ton per year basis an over all decrease in allowable emissions would occur under the permit revision. The only exception was an increase in allowable $SO_2$ emissions due to subsequent permitting by ADEC that has raised the $SO_2$ BACT limit established by EPA in one of the four EPA permits issued (EPA PSD IV).



In general, ADEC has sought to include emission limits corresponding to the BACT limits established by EPA in operating permits it has issued under the prior 18 AAC 50.400. In many instances however, limits have been applied to equipment, which in fact was grandfathered and installed prior to the PSD program. In some instances, ADEC has also established an emission limit, not via a PSD modification, which has a different value than the EPA BACT limit.

With some exceptions which are described below, the majority of the requested revisions to Exhibit B of permit 9673-AA003 reflect the BACT emission limits established by EPA which are contained within the August 29, 1997 EPA permit revision for Prudhoe Bay facilities.

Exhibit B of permit 9673-AA003 does not always indicate whether the ton per year values listed by pollutant for each source are estimates or enforceable limits. BPXA has clarified with EPA the correct ton per year emission limits established as BACT limits. Equipment that was permitted under the PSD process by EPA should have ton per year emission limits. The correct emission limits are shown in the August 29, 1997 EPA permit revision. BPXA requested that each ton per year limit established by EPA be incorporated into the Title V operating permit.

EPA has agreed with BPXA that if equipment permitted by EPA has subsequently been limited by ADEC more stringently, the EPA limit is then superseded. Requested revisions for the Ruston TA 2500 turbines have an operational limitation of 5,600 hours per year imposed by ADEC. As such, even though the turbines were initially permitted by EPA under PSD III, the EPA limits are superseded and the equipment is not contained in the August 29, 1997 EPA permit revision. BPXA requested ton per year emission limits for NOx and CO which reflects the group hourly operation restriction. BPXA also requested the short-term CO emission limit of 109 lb/MMscf be revised to 0.17 lb/MMBtu. In many cases, the current limit is based on a factor from AP-42 (not based on installation of control equipment) and the requested limit reflects the emission factor from the edition of AP-42 that was current at the time of the permit application. EPA granted this same request for all turbines in the August 29, 1997 EPA permit revision. Finally, the 10% opacity limit originally set for the Ruston TA 2500 turbines in the EPA PSD III permit has not been superceded by a more stringent ADEC limit, so the 10% opacity limit is included in this permit.

BPXA requested that the permit reflect the fact that two Cooper Rolls RB211 turbines (tag nos. GTRB-51-8002A and GTRB-1-8002B) have been removed from service.

BPXA requested revisions for the Econotherm heaters. These two heaters also have an operational restriction of 5,600 hours per year (waste heat recovery mode) and 8,900 hours (fresh air firing mode) which supersedes EPA limits. BPXA requested group ton per year limits which reflect the group hourly restrictions for this equipment and removal of the limit for waste heat recovery mode operation due to the Cooper RB211 turbines GTRB-51-8002A and GTRB-51-8002B being removed from service. (The Econotherm heaters cannot operate in waste heat recovery mode without concurrent operation of the aforementioned turbines.) Also, the 5% opacity limit originally set for these heaters in the EPA PSD III permit has not been superceded by a more stringent ADEC limit, so the 5% opacity limit is included in this permit.



BPXA also requested changes for the Cleaver Brooks boiler and BS&B TEG reboiler sources. Permit 9673-AA003 indicates these units have an emission limit for NOx of 0.1 lb/MMBtu. ADEC made a typographical error here by using an incorrect footnote number since CO values are indicated as emission estimates only. In any case, BPXA has determined this equipment pre-dates the PSD permit program and has no BACT emission limits that apply. The NOx limits have been removed.

BPXA requested that any current emission limit or fuel specification limiting the concentration of $H_2S$ or Sulfur in fuel be changed to an emission estimate only. This is primarily in recognition of the fact that there is no ADEC regulation that contains any such restriction. In addition, BPXA has not been required to maintain this type of restriction in order to assure compliance with any $SO_2$ ambient standard or increment. BPXA did not request to remove any existing $H_2S$ or Sulfur in fuel testing or reporting that is required in order for ADEC to continue to have this information.

The only exceptions to this request are the requirements the Cooper turbine GTRB-51-3304 and the Sulzer S3 turbines GTRB-01- 7704A and GTRB-01- 7704B, which were initially permitted by EPA under PSD IV. PSD IV was the only EPA permit for Prudhoe Bay facilities which was significant for $SO_2$. These turbines should have a 25 ppmv $H_2S$ in fuel limit (EPA BACT of 20 ppm revised by ADEC) and new ton per year limits of 5 and 1.5 tons (each Sulzer) $SO_2$, respectively. The ton per year limits are from the August 29, 1997 EPA permit revision.

Tables D through F below identify and explain the emission limit revisions made to Operating Permit 9673-AA003. These tables are intended to document applicable BACT and owner-requested emission limits. They do not include applicable requirements under 18 AAC 50.055.

**<u>Inventory revisions requested by BPXA.</u>** The Title V and construction permit applications for GC-1 also included some changes to the equipment inventory for GC-1. Table C below identifies source inventory corrections and updates made to Operating Permit 9673-AA003.

**Table C – Source Inventory Revisions**

| Equipment Tag No. | Rating in AQCP to Operate 9673-AA003 | New Revised Rating | Explanation |
|---|---|---|---|
| **Gas Turbines** | | | |
| Cooper RB211 Units GTRB-51-8002A GTRB-51-8002B | 29,100 hp ISO | N/A | Equipment removed from service. |
| Sulzer S3 Units GTRB-01-7704A GTRB-01-7704B | 8,400 hp | 7,910 hp | New information. |
| **Gas-Fired Heaters** | | | |
| BS&B TEG Reboilers B-01-0067 B-01-0068 | 5.5 MMBtu/hr | 8.2 MMBtu/hr | The burners in these units were replaced in October 1990. The revised rating reflects the maximum heat input design value for these heaters. |
| **Liquid Fuel-Fired Equipment** | | | |
| Detroit Diesel Emergency Generator GNED-01-8004 | 2,600 kW | 2,685 kW | New information. |
| Detroit Diesel Compressor Engine 86702 | 565 hp | N/A | Unit removed from facility |



**<u>Equipment emission limits requested by BPXA.</u>** All emission limitations are annual average unless otherwise noted. All turbine $NO_X$ emission limits and estimates refer to full load, ISO conditions. All other emission limits and estimates refer to full load, standard conditions.

**Table D - Sources: GE MS 5352B Turbines GTRB-01-7000 and GTRB-01-7001; Cooper RB211-24C Turbines GTRB-51-3204 and GTRB-51-3304; Sulzer/S3 Turbines GTRB-01-7704A and GTRB-01-7704B; and Ruston TA2500 Turbines GTRB-51-8001A, GTRB-51-8001B, and GTRB-51-8001C**

| Pollutant | Source (Make/Model) | Limits in AQCP to Operate 9673-AA003 | Revised Limits | Explanation |
|---|---|---|---|---|
| $NO_X$ | GE MS 5352B (GTRB- 01-7000 and GTRB-01-7001) | 173 ppmv @ 15% $O_2$ | 173 ppmvd @ 15% $O_2$ and 1,115 tpy each unit | For all except Ruston, EPA PSD II, III, and IV BACT and 8/29/97 permit revision. |
| | Cooper RB211-24C (GTRB-51-3204 and GTRB-51-3304) | 213 ppmv @ 15% $O_2$ | 213 ppmvd @ 15% $O_2$ and 999 tpy each unit | For Ruston, EPA PSD III BACT superseded by more stringent |

| Pollutant | Source (Make/Model) | Limits in AQCP to Operate 9673-AA003 | Revised Limits | Explanation |
|---|---|---|---|---|
| | Sulzer/S3 (GTRB-01-7704A and GTRB-01-7704B) | 169 ppmv @ 15% $O_2$ | 169 ppmvd @ 15% $O_2$ and 230 tpy each unit | ADEC operational limit and owner-requested emission limits. |
| | Ruston TA2500 (GTRB-51-8001A, GTRB-51-8001B, and GTRB-51-8001C) | 150 ppmv @ 15% $O_2$ | 150 ppmvd @ 15% $O_2$ and 55.2 tpy combined | |
| **CO** | GE MS 5352B (GTRB-01-7000 and GTRB-01-7001) | 109 lb/MMscf fuel gas | 0.17 lb/MMBtu and 269 tpy each unit | For all except Ruston, EPA PSD II, III, and IV BACT and 8/29/97 permit revision.<br><br>For Ruston, EPA PSD III BACT superseded by more stringent ADEC operational limit and owner-requested emission limits. |
| | Cooper RB211-24C (GTRB-51-3204 and GTRB-51-3304) | | 0.17 lb/MMBtu and 193 tpy each unit | |
| | Sulzer/S3 (GTRB-01-7704A and GTRB-01-7704B) | | 0.17 lb/MMBtu and 56 tpy each unit | |
| | Ruston TA2500 (GTRB-51-8001A, GTRB-51-8001B, and GTRB-51-8001C) | | 0.17 lb/MMBtu and 15.3 tpy combined | |
| **PM** | GE MS 5352B (GTRB-01-7000 and GTRB-01-7001) | 14 lb/MMscf | 0.014 lb/MMBtu and 22 tpy each unit | EPA PSD II and IV BACT and 8/29/97 permit revision. |
| | Cooper RB211-24C (GTRB-51-3204 and GTRB-51-3304) | 14 lb/MMscf for GTRB-51-3204 only | 0.014 lb/MMBtu and 16 tpy for GTRB-51-3204<br><br>16 tpy for GTRB-51-3304 | |
| | Sulzer/S3 (GTRB-01-7704A and GTRB-01-7704B) | No Limit | 4.6 tpy each unit | |
| | Ruston TA2500 (GTRB-51-8001A, GTRB-51-8001B, and GTRB-51-8001C) | No Limit | No Limit | |
| **$SO_2$** | GE MS 5352B (GTRB-01-7000 and GTRB-01-7001) | No Limit | No Limit | No BACT or other limit applies to fuel |
| | Cooper RB211-24C (GTRB-51-3204 and GTRB-51-3304) | No Limit for GTRB-51-3204. 25 ppm $H_2S$ in fuel for GTRB-51-3304 | No limit for GTRB-51-3204.<br><br>25 ppmv $H_2S$ in fuel and 5 tpy for GTRB-51-3304 | Ton-per-year limit originates from EPA PSD IV BACT, as amended 8/29/97 for GTRB-51-3304 |

| Pollutant | Source (Make/Model) | Limits in AQCP to Operate 9673-AA003 | Revised Limits | Explanation |
|---|---|---|---|---|
| | Sulzer/S3 (GTRB-01-7704A and GTRB-01-7704B) | 25 ppm $H_2S$ in fuel | 25 ppmv $H_2S$ in fuel and 1.5 tpy each unit | Ton-per-year limit originates from EPA PSD IV BACT as amended 8/29/97 |
| | Ruston TA2500 (GTRB-51-8001A, GTRB-51-8001B, and GTRB-51-8001C) | No Limit | No Limit | No BACT or other limit applies to fuel |
| **VOC** | All Gas-Fired Turbines (GTRB-01-7000, GTRB-01-7001, GTRB-51-3204, GTRB-51-3304, GTRB-01-7704A, GTRB-01-7704B, GTRB-51-8001A, GTRB-51-8001B, and GTRB-51-8001C) | No Limit | No Limit | No BACT or other limit applies. |
| **Opacity** | All Gas-Fired Turbines (GTRB-01-7000, GTRB-01-7001, GTRB-51-3204, GTRB-51-3304, GTRB-01-7704A, GTRB-01-7704B, GTRB-51-8001A, GTRB-51-8001B, and GTRB-51-8001C) | 20%, 3 min/hr | 10%, consecutive 6-minute average | EPA PSD II, III, and IV as amended 8/29/97. |



**Table E - Sources: Econotherm Heaters H-51-8002A and H-51-8002B; Cleaver Brooks Boilers B-01-0001 and B-01-0002, Cleaver Brooks Heaters B-01-0003 and B-01-0004, BS&B TEG Reboilers B-01-0067 and B-01-0068 and Smith TEG Reboiler B-01-9920**

| Pollutant | Source (Make/Model) | Limits in AQCP to Operate 9673-AA003 | Revised Limits | Explanation |
|---|---|---|---|---|
| **$NO_X$** | Econotherm (H-51-8002A and H-51-8002B) | 0.08 lb/MMBtu | 0.08 lb/MMBtu and 71.4 tpy total for the two heaters combined | AQC Permit no. 9673-AA003 for short-term limit of 0.08 lb/MMBtu.<br><br>EPA PSD ton per year BACT limit superseded by more stringent ADEC operational limit and owner-requested firing rate limit and emission limit. |

| Pollutant | Source (Make/Model) | Limits in AQCP to Operate 9673-AA003 | Revised Limits | Explanation |
|---|---|---|---|---|
| | Cleaver Brooks and BS&B (B-01-0001, B-01-0002, B-01-0003, B-01-0004, B-01-0067, and B-01-0068) | 0.1 lb/MMBtu (except for unit B-01-0001 which has no limit) | No Limit | All units pre-date the PSD permit program. No BACT or other limits apply. |
| | Smith (B-01-9920) | 0.08 lb/MMBtu (at 4% excess $O_2$) | 0.08 lb/MMBtu (at 4% excess $O_2$) | No change |
| **CO** | Econotherm (H 51-8002A and H-51-8002B) | 0.018 lb/MMBtu (waste heat recovery mode firing) and 60 ppm (fresh air firing mode) | 60 ppmvd and 145.1 tpy for the two heaters combined (fresh air mode firing) | Owner-requested limit of 60 ppmvd during fresh air firing.<br><br>EPA PSD ton per year limits superseded by more stringent ADEC operational limit and owner-requested firing rate limit and emission limit.<br><br>Waste heat recovery mode of operation no longer applies due to the removal of Cooper RB211 turbine tag nos. GTRB-51-8002A and GTRB-51-8002B from service. |
| | Cleaver Brooks and BS&B (B-01-0001, B-01-0002, B-01-0003, B-01-0004, B-01,0067, and B-01-0068) | No Limit | No Limit | No BACT or other limit applies. |
| | Smith (B-01-9920) | 0.018 lb/MMBtu | 0.018 lb/MMBtu | No change |

| Pollutant | Source (Make/Model) | Limits in AQCP to Operate 9673-AA003 | Revised Limits | Explanation |
|---|---|---|---|---|
| **PM** | Econotherm<br><br>(H-51-8002A and H-51-8002B) | No Limit | No Limit | No BACT limit applies. |
| | Cleaver Brooks and BS&B<br><br>(B-01-0001, B-01-0002, B-01-0003, B-01-0004, B-01,0067, and B-01-0068) | No Limit | No Limit | No BACT limit applies. |
| | Smith<br><br>(B-01-9920) | 2.5 lb/MMscf (permit does not indicate whether this value is an estimate or limit) | No Limit. Value is an emission estimate only. | No BACT limit applies |
| **$SO_2$** | Econotherm<br><br>(H-51-8002A and H-51-8002B) | No Limit | No Limit | No BACT or other limit applies to fuel |
| | Cleaver Brooks and BS&B<br><br>(B-01-0001, B-01-0002, B-01-0003, B-01-0004, B-01,0067, and B-01-0068) | No Limit | No Limit | No BACT or other limit applies to fuel |
| | Smith<br><br>(B-01-9920) | No Limit | No Limit | No BACT or other limit applies to fuel |
| **VOC** | All Heaters<br><br>(H-51-8002A, H-51-8002B, B-01-0001, B-01-0002, B-01-0003, B-01-0004, B-01,0067, B-01-0068, and B-01-9920) | No Limit | No Limit | No BACT or other limits apply |

| Pollutant | Source (Make/Model) | Limits in AQCP to Operate 9673-AA003 | Revised Limits | Explanation |
|---|---|---|---|---|
| **Opacity** | Econotherm Heaters<br><br>(H-51-8002A and H-51-8002B) | 20%, 3 min/hr | 5%, consecutive 6-minute average | EPA PSD III BACT |

**Table F - Sources: Emergency Equipment (GNED-01-0001, GNED-01-0002, GNED-01-0011, PED-01-7004, GNED-01-8004, and GNED-01-8001) and Flares (FL-01-0001, FL-01-0002, FL-01-0003, FL-01-0004, FL-01-0005, FL-01-0006, FL-01-0007, Fl-01-7001, Fl-01-7002, FL-01-9902, and FL-01-9907)**

| Pollutant | Source | Limits in AQCP to Operate 9673-AA003 | Revised Limits | Explanation |
|---|---|---|---|---|
| **$NO_X$** | All Emergency Equipment and Flares | No limit | No limit | No BACT or other limits apply |
| **CO** | | 0.00529 lb/hp-hr for emergency equipment GNED-01-0002, GNED-01-0011, and GNED-01-8004 | No limit. Value is an emission estimate only. | No BACT or other limits apply |
| **PM** | | No limit | No limit | No BACT limits apply |
| **$SO_2$** | | No limit | No limit | No BACT or other limits applies to fuel |
| **VOC** | | No limit | No limit | No BACT or other limits apply |



## STATEMENT OF BASIS FOR THE PERMIT CONDITIONS

The state and federal regulations for each condition are cited in Operating/Construction Permit No. 182TVP01.

### Conditions 1 and 2, Emission Fees

**Applicability:** The regulations require all permits to include due dates for the payment of fees and any method the Permittee may use to re-compute assessable emissions.

**Factual Basis:** These standard conditions require the Permittee to pay fees in accordance with the Department's billing regulations. The billing regulations set the due dates for payment of fees based on the billing date.

The default assessable emissions are emissions of each air contaminant authorized by the permit (AS 46.14.250(h)(1)(A)). Air contaminant means any regulated air contaminant and any hazardous air contaminant. Therefore, assessable emissions under AS 46.14.250(h)(1)(A) means the potential to emit any air contaminant identified in the permit, including those not specifically limited by the permit. For example, hydrogen chloride (HCl) emissions from an incinerator are assessable emissions because they are a hazardous air contaminant, even if there is currently no emission limit on HCl for that class of incinerator.

The conditions also describe how the Permittee may calculate actual annual assessable emissions based on previous actual annual emissions. According to AS 46.14.250(h)(1)(B), assessable emissions are based on each air contaminant. Therefore, fees based on actual emissions must also be paid on any contaminant emitted whether or not the permit contains any limitation of that contaminant.

This standard condition specifies that, unless otherwise approved by the Department, calculations of assessable emissions based on actual emissions use the most recent previous calendar year's emissions. Since each current year's assessable emissions are based on the previous year, the Department will not give refunds or make additional billings at the end of the current year if the estimated emissions and current year actual emissions do not match. The Permittee will normally pay for actual emissions - just with a one-year time lag.

Projected actual emissions may differ from the previous year's actual emissions if there is a change at the facility, such as changes in equipment or an emission rate from existing equipment.



If the Permittee does not choose to annually calculate assessable emissions, emissions fees will be based on "potential to emit" (PTE).

The PTE set forth in the condition is based on liquid fuel with a sulfur content of 0.5% by weight or fuel gas with a sulfur content of 30 ppm $H_2S$ by volume. If the actual sulfur content of the fuel is greater than these assumptions, the assessable emissions calculations provided by the Permittee should reflect the actual sulfur content.

## Condition 3 and Section 6, Visible Emissions Standard

**Applicability:** This regulation applies to operation of all fuel-burning equipment in Alaska. Source ID(s) 1, 2, and 5 through 37 are fuel-burning equipment. All of the turbines and two of the heaters at the facility are subject to the BACT opacity limits contained in the EPA PSD II, III, and IV permits for the Prudhoe Bay Unit.

**Factual Basis:** Condition 3 requires the Permittee to comply with the federal and the state visible emission standards applicable to fuel-burning equipment. The Permittee shall not cause or allow the equipment to violate these standards. This condition also contains BACT derived opacity limits from previous EPA PSD permits. Turbines (Source IDs 1, 2, and 5 through 11) are subject to a 10% opacity limit and the Econotherm heaters (Source IDs 12 and 13) are subject to a 5% opacity limit.

This condition has recently been adopted into regulation as a standard condition. MR&R requirements are listed in Section 6 of the permit.

**Gas Fired:**

Monitoring – The monitoring of gas fired sources for visible emissions is waived, i.e. no source testing will be required. The Department has found that natural gas fired equipment inherently has negligible PM emissions. However, the Department can request a source test for PM emissions from any smoking equipment.

Reporting – The Permittee must annually certify that only gaseous fuels are used in the equipment.

**Liquid Fuel-Fired:**

For the emergency liquid-fuel fired engines, Source ID(s) 21 through 26, as long as none of these sources exceeds 400 hours of operation per consecutive 12-month period, no monitoring is required. The Permittee shall monitor the hours of operation of these sources. If any of these sources exceeds 400 hours of operation, the source is subject to the visible emissions MR&R requirements described in conditions 26 through 28.

Monitoring – The visible emissions must be observed by the Method-9 plan as detailed in Section 6. More frequent or less frequent testing may be required depending on the results of the observations.

Recordkeeping - The Permittee is required to record the results of all visible emission observations and record any actions taken to reduce visible emissions.

Reporting - The Permittee is required to report: 1) emissions in excess of the federal and the state visible emissions standard, and 2) deviations from permit conditions. The Permittee is required to include copies of the results of all visible emission observations with the facility operating report.



**Dual Fuel Fired Sources:**

For Source ID(s) 14 through 17, as long as they operate only on gas, monitoring consists of an annual certification that only gaseous fuels were used in the equipment. When they operate on liquid fuel less then 400 hours per consecutive 12-month period, monitoring consists of annual certification of compliance with the opacity standard. When they operate on backup liquid fuel for more than 400 hours during any consecutive 12-month period, monitoring as detailed in Section 6 is required in accordance with recently issued Department Guidance AWQ 02-014. The 400 hour trigger for additional monitoring applies to each individual unit, not as a combined total for all units.

**Flares:**

Monitoring for flares (Source ID(s) 27 through 37) requires Method-9 observations of scheduled flaring events lasting more than one hour. The Permittee must report the results of these observations to the Department.

## Condition 4 and Section 6, Particulate Matter (PM) Standard

**Applicability:** The PM standard applies to operation of all fuel burning equipment in Alaska. Source ID(s) 1, 2, and 5 through 37 are fuel-burning equipment. The SIP standard for PM applies to all fuel-burning equipment because it is contained in the federally approved SIP dated October 1983.

**Factual Basis:** Condition 4 requires the Permittee to comply with the state PM (also called grain loading) standard applicable to fuel-burning equipment. The Permittee shall not cause or allow fuel-burning equipment to violate this standard.

MR&R requirements are listed in Section 6 of the permit.

**Gas Fired:**

Monitoring – The monitoring of gas fired sources for particulate matter is waived, i.e. no source testing will be required. The Department has found that natural gas fired equipment inherently has negligible PM emissions. However, the Department can request a source test for PM emissions from any smoking equipment.

Reporting – The Permittee must annually certify that only gaseous fuels are used in the equipment.

**Liquid Fuel-Fired:**

For the emergency liquid fuel-fired engines, Source ID(s) 21 through 26, as long as none of these sources exceeds 400 hours of operation per consecutive 12-month period, no monitoring is required. The Permittee shall monitor the hours of operation of these sources. If any of these sources exceeds 400 hours of operation, the source is subject to the particulate matter MR&R requirements described in conditions 31 through 33.

Monitoring – The Permittee is required to conduct PM source testing if threshold values for opacity are exceeded.

Recordkeeping - The Permittee is required to record the results of PM source tests.

Reporting - The Permittee is required to report: 1) incidents when emissions in excess of the opacity threshold values have been observed, and 2) results of PM source tests. The Permittee is required to include copies of the results of all visible emission observations with the facility operating report.



**Dual Fuel Fired Sources:**

For Source ID(s) 14 through 17, as long as they operate only on gas, monitoring consists of an annual certification that only gaseous fuels were used in the equipment. When they operate on liquid fuel less then 400 hours per consecutive 12-month period, monitoring consists of annual certification of compliance with the particulate matter standard. When they operate on backup liquid fuel for more than 400 hours during any consecutive 12-month period, monitoring as detailed in Section 6 is required in accordance with recently issued Department Guidance AWQ 02-014. The 400 hour trigger for additional monitoring applies to each individual unit, not as a combined total for all units.”

**Flares:**

Monitoring of gas fired flares for particulate matter is waived, i.e. no source testing will be required, because of the difficulty and questionable results these tests produce when applied to flares. The Department has recognized this fact by incorporating the waiver in the State Implementation Plan adopted in November 1984 which has not been federally approved. No recordkeeping or reporting is required.

## Condition 5, Sulfur Compound Emissions

**Applicability:** The sulfur emission standard applies to operation of all fuel-burning equipment in the State of Alaska. Source ID(s) 1, 2, and 5 through 37 are fuel-burning equipment. The SIP standard for sulfur dioxide applies because it is contained in the federally approved SIP dated October 1983.

**Factual Basis:** The condition requires the Permittee to comply with the sulfur emission standard applicable to fuel-burning equipment. The Permittee may not cause or allow the affected equipment to violate this standard.

Sulfur dioxide comes from the sulfur in the liquid, hydrocarbon fuel (e.g. diesel or No. 2 fuel oil). Fuel containing no more than 0.75% sulfur by weight will always comply with the emission standard. For fuels with a sulfur content higher than 0.75%, the condition requires the Permittee to use Section 15 to calculate the sulfur-dioxide concentration using the equations to show that the standard is not exceeded.

Monitoring - Fuel sulfur testing will verify compliance.

Fuel gas sulfur is measured as hydrogen sulfide ($H_2S$) concentration in ppm by volume (ppmv). Calculations[11] show that fuel gas containing no more than 4000 ppm $H_2S$ will always comply with this emission standard. This is true for all fuel gases, even with no excess air.

Equations to calculate the exhaust gas $SO_2$ concentrations resulting from the combustion of fuel gas were not included in this permit. Fuel gas with an $H_2S$ concentration of even 10 percent of 4000 ppm is currently not available in Alaska and is not projected to be available during the life of this permit.

Recordkeeping - For liquid fuel the Permittee is required to record the fuel sulfur content, and for fuel gas, the $H_2S$ concentration of the fuel gas.

Reporting – The Permittee is required to report as excess emissions whenever the fuel combusted causes sulfur compound emissions to exceed the standards in this condition. The Permittee is required to include the material balance calculations for liquid fuel in the excess emissions report.

The Permittee is required to include copies of the records mentioned in the previous paragraph with the facility operating report.



## Conditions 6 and 7, BACT and PSD Avoidance/Owner-Requested Emission Limits

**Applicability:** The BACT limits apply because they were developed during PSD reviews of facility by the EPA. These conditions require the Permittee to comply with the emission limits derived from BACT analysis. The Permittee may not cause or allow their equipment to violate these limits.

The PSD Avoidance limits apply because they were established by ADEC in Air Quality Control Permit to Operate No. 9173-AA010. These limits were established at BPXA's request in the GHX II permit application to avoid PSD. Other emission limits have been set at BPXA's request in the Title V and construction permit applications and amendments. These are based on operating time limits for the Ruston TA2500 turbines and the Econotherm heaters and a firing rate limit for the Econotherm heaters.

[11] See ADEC Air Permits Web Site at http://www.state.ak.us/dec/dawq/aqm/newpermit.htm, under "Stoichiometric Mass Balance Calculations of Exhaust Gas SO2 Concentration."

**Factual Basis:** Between 1979 and 1981, EPA Region 10 issued four PSD permits for Prudhoe Bay Facilities. On August 29, 1997 EPA issued revisions to the four PSD permits. The primary revisions include identification of specific equipment and tag numbers, apportionment of either field-wide or facility-wide ton per year limits to unit specific limits, and updating emission limits based solely on AP-42 factors to values in the edition of AP-42 that was current in 1997.

As part of the EPA process, it was demonstrated to Region 10 that on a ton per year basis an overall decrease in allowable emissions would occur under the permit revision. The only exception was an increase in allowable $SO_2$ emissions due to subsequent permitting by ADEC that raised the $SO_2$ BACT limit established by EPA in one of the four EPA permits issued (PSD IV).

The BACT limits presented in these conditions reflect the limits stated in the EPA PSD II, III, and IV permits, including revised emission limits granted by EPA on August 29, 1997. The EPA revisions established ton per year emission limitations on a group basis for turbines and have been incorporated into this Title V Operating Permit.

For Source IDs 1, 2, and 5 through 11 (turbines), ton per year emission limits apply for $NO_x$ and CO. For Source ID(s) 1, 2, and 5 through 8 ton per year emission limits apply for PM. For Source ID(s) 6 through 8, ton per year emission limits apply for $SO_2$. For $NO_x$, CO, PM, and $SO_2$ (Source IDs 6 through 8 only), EPA also established short-term BACT emission limits in other terms (i.e. ppm, lb/MMscf, or lb/MMBtu). Specific numerical limits are detailed in condition 6.



For Source ID(s) 12 and 13 (heaters), ton per year emission limits apply for $NO_X$ and CO. EPA also established short-term BACT $NO_X$ and CO emission limits of 0.08 and 0.018 lb/MMBtu, respectively.

For Source ID(s) 1, 2, and 5 through 13 and 20, the Permittee is required to calculate and report emission levels for pollutants with applicable limits. Monitoring for compliance with the short-term turbine BACT emission limit for $NO_X$ is identical to that for Subpart GG turbines.

As part of the EPA PSD permit amendment process, EPA agreed that if equipment permitted by EPA has subsequently been limited by ADEC more stringently, the EPA limits are then superseded. The Ruston TA 2500 turbines (Source ID(s) 9 through 11) have an operational limit imposed by ADEC of 5,600 hours of operation per year, combined. As such, although these units were initially permitted by EPA under permit no. PSD-X81-01 (PSD III), the EPA $NO_X$ and CO ton-per-year limits are superseded by the more stringent $NO_X$ and CO ton-per-year limits that results from the ADEC operational limit. Therefore, the EPA did not carry the original $NO_X$ and CO BACT limits forward to the amended permit, dated August 29, 1997, for Source ID(s) 9 through 11. In the construction permit hygiene application, dated November 25, 1997, BPXA requested group ton per year $NO_X$ and CO limits for Source IDs 9 through 11 of 55.2 and 15.3 tpy, respectively. These limits, which reflect the group hourly restrictions for these units, replace the BACT limits originally established by EPA.

The Econotherm heaters (Source ID(s) 12 and 13) also have operational limits imposed by ADEC of 8,900 hours of fresh-air mode operation per year, combined, and 5,600 hours of waste heat recovery mode operation per year, combined.[12] As such, although these units were initially permitted by EPA under permit no. PSD-X81-01 (PSD III), the EPA $NO_X$ and CO ton-per-year limits are superseded by the more stringent $NO_X$ and CO ton-per-year limits that result from the ADEC operational limits and the owner-requested firing-rate limit. Therefore, the EPA did not carry the original $NO_X$ and CO BACT limits forward to the amended permit, dated August 29, 1997, for Source ID(s) 12 and 13. In the construction permit hygiene application, dated November 25, 1997, BPXA requested a group ton per year $NO_X$ limit for Source IDs 12 and 13 of 71.7 tpy and group CO limits of 204.3 tpy (fresh air mode) and 23.8 tpy (waste heat recovery mode). In the application amendment, dated December 11, 2002, BPXA revised the requested $NO_X$ and CO ton-per-year emission limits to correct computational errors found in conjunction with the 1997 request and to account for the owner-requested firing rate limit of 181.5 MMBtu/hr for each of these heaters. ADEC has included the updated $NO_X$ group ton-per-year emission limit of 116.3 tpy and the CO group ton-per-year limit of 145.1 tpy (fresh air mode) in this operating/construction permit[12]. These limits, which reflect the group hourly restrictions and firing rate restrictions for these units, replace the BACT limits originally established by EPA.

Source ID(s) 12 and 13 are waste heat recovery units with heat exchanger's at a design rating of 320 MMBtu/hr. During waste heat recovery operation, 17.5 MMBtu/hr is supplied by the turbine exhaust and 302.5 MMBtu/hr is supplied from the supplemental firing of the John Zink burners[12]. (The Permittee requested a firing rate limit of 181.5 MMBtu/hr for these heaters in correspondence to ADEC dated December 11, 2002.) During fresh air firing operational mode, only the John Zink burners are operating using automatic fuel flow valve and the associated turbine is not in operation. BPXA requested an increase in the hours of fresh air firing mode of the Econotherm heaters from 100 to 8900 hours per year in a letter dated April 4, 1996. ADEC and the applicant concurred to limit the operation of the Econotherm heaters fuel flow valves in automatic operation only during fresh air firing mode and limit the exhaust to 60 ppmvd CO. BPXA indicated that most emissions are offset by the associated turbines emissions operational limits associated with shut down of the West Side Waterflood project, so there was no increase in potential emissions.



Source ID 20 has $NO_x$ and CO short-term emission rate (lb/MMBtu) PSD avoidance limits that were established by ADEC permit no. 9173-AA010 as a result of the GHX-II permit application. The $NO_x$ limit includes a provision that it applies at 4% excess oxygen.

Monitoring – For annual emission limits contained in Table 2 and Table 3 the facility will use fuel consumption and/or hours of operation along with the emission factors contained in Section 16 to calculate monthly emissions and then use the monthly values to determine the twelve-month period summation of emissions.

Recordkeeping – Maintain records of monthly emission levels.

Reporting – Report compliance with annual emission limits for Source ID(s) 1, 2, and 5 through 13, and 20. Notify the department when annual emission limits are exceeded.

## Condition 8, Owner Requested Limit

**Applicability:** Applicable because the Permittee request this limit.

[12] The limits for waste heat recovery mode operation are not carried forward to this permit because these heaters can no longer operate in this mode due to removal of the associated Cooper RB211 turbines (tag nos. GTRB-51-8002A and GTRB-51-8002B).

**Factual Basis:** By adhering to this limit the facility will maintain its status as a "minor facility" with respect to HAPs emissions and therefore not subject to the MACT standards contained in 40 CFR 63.

## Conditions 9 through 13, Operating Permit Requirements Carried Forward

**Applicability and Factual Basis:** The previous operating permit 9673-AA003 contained conditions that must be carried forward to this Title V permit. Condition 9 requires the Permittee to limit the number of hours of operation per consecutive 12-month period for emergency equipment, Source ID(s) 21 through 26. An exceedance of the operational hour limit is not a violation if ADEC determines that the exceedance is due to an emergency. Condition 12 contains requirements to measure fuel consumption so that annual emission levels may be calculated. Conditions 9 through 11, and 13 contain monitoring requirements for operating hour limits, operating hours monitoring for both emergency equipment and gas-fired sources, monitoring flue gas for heaters rated at greater than 43 MMBtu/hr, and fuel gas sulfur content.

## Conditions 14 through 19, NSPS Subpart A Requirements

**Applicability:** The Department has incorporated by reference the NSPS effective July 1, 2001, for specific industrial activities, as listed in 18 AAC 50.040.

Most (with the exception of some storage tanks) sources subject to an NSPS are subject to Subpart A. At this facility, Source IDs 1, 2, and 5 through 11, and 26 are subject to NSPS Subpart GG, Source ID 20 is subject to NSPS Subpart Dc, and Source IDs 38 and 39 are subject to Subpart Ka, and therefore subject to Subpart A.



Condition 14 - Start-up, shutdown, or malfunction record maintenance requirements in 40 C.F.R. 60.7(b) are applicable to all NSPS sources subject to Subpart A.

Condition 15 - Excess emission reporting requirements in 40 C.F.R. 60.7(c) & (d) are applicable to Source IDs 1, 2, 5 through 11, and 26 because there are applicable emission standards. The Department has included in Attachment A of the basis a copy of the federal EEMSP reporting form for use by the facility.

Condition 16 - Performance (Source) Tests requirements contained in 40 C. F. R. 60.8 are applicable to Source IDs 1, 2, and 5 through 11.

Condition 17 - Good air pollution control practices in 40 C.F.R. 60.11(d) are applicable to all NSPS sources subject to Subpart A (Source IDs 1, 2, and 5 through 11, 20, 26, 38 and 39).

Condition 18 – Credible Evidence procedures in 40 C.F.R. 60.11(g) are applicable to all NSPS sources subject to Subpart A with applicable standards (Source IDs 1, 2, and 5 through 11, 26, and 38).

Condition 19 - Concealment of emissions prohibitions in 40 C.F. R. 60.12 are applicable to Source IDs 1, 2, and 5 through 11, 26, and 38.

Recordkeeping requirements in 40 C.F.R. 60.7(f) are applicable to all NSPS sources (satisfied by condition 65).

The flare is not subject to 40 C.F. R. 60.18 because it is a safety device and not a control device.

**Factual Basis:** General provisions of 40 CFR 60, Subpart A apply to owners or operators who are subject to a relevant subpart under Part 60, except when otherwise specified in an applicable subpart or relevant standard. The intent of Subpart A is to eliminate the repetition of requirements applicable to all owners or operators affected by NSPS.

## Condition 20, NSPS Subpart Dc Recordkeeping and Reporting Requirements

**Applicability:** NSPS Subpart Dc applies to steam generating units for which construction, modification, or reconstruction commenced after June 9, 1989 and have maximum design heat input capacities of 29 MW (100 MMBtu/hr) or less, but greater than or equal to 2.9 MW (10 MMBtu/hr). Source ID 20 is subject to Subpart Dc.

Source ID 20 burns only natural gas and is not subject to the $SO_2$ standard in 40 C.F.R. 60.42c or the PM standard in 40 C.F.R. 60.43c.

**Factual Basis:** The condition requires the Permittee to comply with the Subpart Dc recordkeeping and reporting requirements. Monitoring consists of recording daily fuel consumption.

## Condition 21, NSPS Subpart Ka

**Applicability:** NSPS Subpart Ka applies to sources that were built or modified after May 18, 1978 and prior to July 23, 1984. Source ID 39 was constructed during this time frame, has a storage capacity greater than 40,000 gallons, and stores petroleum liquids.

**Factual Basis:** If the true vapor pressure of the liquid stored in the tank is maintained below 1.0 psia, then there are no operational monitoring requirements and if the true vapor pressure is maintained below 1.5 psia, then there are no applicable equipment standards.



Monitoring consists of an annual certification of compliance. If condition 21 is met, then there are no applicable requirements other than those found in 40 CFR 60, Subpart A.

## Condition 22, NSPS Subpart Ka VOC Standard

**Applicability:** NSPS Subpart Ka applies to sources that were built or modified after May 18, 1978 and prior to July 23, 1984. Source ID 38 was constructed during this time frame. This source has a storage capacity of greater than 40,000 gallons and stores petroleum liquid.

**Factual Basis:** This condition incorporates NSPS Subpart Ka requirements. Condition 22 requires that a closed vent vapor recovery system be installed on Source ID 38.

## Conditions 23 and 25, NSPS Subpart GG Requirements

**Applicability:** NSPS Subpart GG applies to stationary gas turbines with a heat input at peak load (maximum load at 60 percent relative humidity, 59 degrees F, and 14.7 psi) equal to or greater than 10.7 gigajoules per hour (10 MMBtu/hr), based on the lower heating value of the fuels fired and constructed, modified, or reconstructed after October 3, 1977.

**Factual Basis:** These conditions incorporate NSPS Subpart GG $NO_X$ emission and sulfur compound limits. The Permittee may not allow equipment to violate these standards.

*$NO_X$ Standard:* For a turbine subject to 40 C.F.R. 60.332, the $NO_X$ standard is determined by the following equation:

$$STD_{NOX} = 0.015(14.4 / Y) + F$$

where,

$STD_{NOX}$ = allowable $NO_X$ emissions (percent by volume at 15 percent oxygen and on a dry basis)

$Y$ = manufacturer's maximum rated heat input (kJ/W-hr), or actual measured heat rate based on lower heating value of fuel as measured at actual peak load for the affected facility. The value of Y shall not exceed 14.4 kJ/W-hr

$F$ = $NO_X$ emissions allowance for fuel bound nitrogen, percent by volume, **assumed to be zero for Alaska fuel**.

Based on the manufacturer's heat rating at manufacturer's rated peak load, and assuming fuel bound nitrogen of zero, the $NO_X$ standard is 173 ppmvd for Source ID(s) 1 & 2, 213 ppmvd for Source ID(s) 5 & 6, and 169 ppmvd for Source ID(s) 7 & 8.

The fuel gas nitrogen monitoring requirement of 40 CFR 60.334(b) has been waived for this facility per correspondence from EPA dated August 19, 1996. Therefore, fuel gas nitrogen monitoring is not required by this permit condition for NSPS Subpart GG.

*$SO_2$ Standard:* The Permittee is required to comply with one of the following sulfur requirements for Source ID(s) 1, 2, and 5 through 11, and 26 (turbines):

(1) do not cause or allow $SO_2$ emission in excess of 0.015 percent by volume, at 15 percent $O_2$ and on a dry basis (150 ppmv), or

(2) do not cause or allow the sulfur content for the fuel burned in Source ID(s) 1, 2, and 5 through 11, and 26 to exceed 0.8 percent by weight.



The Permittee has elected to comply with the fuel sulfur content limit.

*Exemptions -* Emergency gas turbines,[13] military gas turbines for use in other than a garrison facility, military gas turbines installed for use as military training facilities, and fire fighting gas turbines are exempt from the $NO_X$ emission limit in condition 23. Source ID 26 is a liquid fired turbine that drives a generator and is used only when there is an interruption of fuel gas supply. Source ID 26 meets the definition of an emergency gas turbine and is, therefore, exempt from the Subpart GG $NO_x$ emission limits of condition 23, under 40 CFR 60.332(g). In addition, Source ID(s) 9 through 11 are exempt from the $NO_X$ limit in condition 23 because they meet the exemption criteria of 40 CFR 60.332(e).

## Condition 24, $NO_x$ Monitoring, Recordkeeping, and Reporting

**Applicability:** Periodic monitoring is included in condition 24. This additional monitoring is necessary to ensure that turbine emissions stay below the NSPS $NO_X$ standard.

[13] *Emergency Gas Turbine* means any stationary gas turbine that operates as a mechanical or electrical power source only when the primary power source for a facility has been rendered inoperable by an emergency situation, as defined in 40 C.F.R. 60.331(e), effective 7/1/01.

**Factual Basis:** The Department does not have enough information to make categorical determinations that certain types of turbines, or turbines with emission test results below a certain percentage of the Subpart GG $NO_x$ emission limit will inherently comply with the Subpart GG limit at all times and will never need additional testing. After a sufficient body of $NO_x$ data is gathered under monitoring conditions for compliance with 40 C.F.R. 60, Subpart GG, the Department may find that it has enough information to make such categorical determinations. In that event, the Department would revise the $NO_x$ monitoring conditions. The Department may determine that to assure compliance it is necessary to retain or increase the current monitoring frequency.

These conditions do not include the initial NSPS performance test requirements. If a turbine under this permit is still subject to the performance test requirement of 40 C.F.R. 60.8, a source specific condition will be necessary.

The intent of these conditions is that turbines or groups of turbines be initially tested on a 5-year cycle. If no testing is required during the permit term, and if the same condition were used in the renewal permit initial testing could be on a 10-year testing cycle. After the first testing cycle, the Department intends to re-evaluate the necessary monitoring frequency.

The condition does not state how load must be measured. For some turbines it may be possible to directly measure load as either mechanical or electrical output. For others, it may be necessary to calculate load indirectly based on measurements of other parameters. The Department is not attempting to dictate what method is most appropriate through the permit condition, but should evaluate the adequacy of methods of calculating load based on the load monitoring proposed by the Permittee.



Subpart GG defines "emergency gas turbine" and exempts turbines meeting that definition from the GG emission standards. Some turbines may be operated as standby equipment but not meet the definition of emergency turbine, so the Department has added a Method 20 monitoring threshold of 400 hours per 12 month period. For turbines expected to operate less than 400 hours, the Department has also added recordkeeping for hours of operation. The Department does not intend to require the Permittee to operate a turbine solely for the purpose of testing.

The condition requires testing at a range of loads, consistent with the performance test requirements in Subpart GG, that is, test at 30, 50, 75, and 100% load. If testing at these four loads is not reasonable, the condition allows the Permittee to propose to the Department what test loads will be reasonable and adequate, and the Department will have the responsibility to make a finding on that proposal. If EPA has already approved alternative test loads for the initial performance test the Department would allow those test loads if the information that went into that decision were still representative of the turbine operation.

In condition 24, the Department considers "fuel type" to mean, for liquid fuels a type of fuel as described in an ASTM or similar fuel specification.

Load measurements or load calculations from load surrogate measurements are for one-hour periods. The intent is to match the averaging period for the test method. Method 20 identifies a number of traverse points that vary with the size of the stack. From these points the tester is to choose at least 8 points for $NO_x$ measurements. The time at each point is to be at least one minute plus the average response time of the instrument. The recorded value is the average steady state response. Presumably, the steady state response would exclude some or all of the response time of the instrument. Three runs are to be done at each test load.

The three runs would represent 24 minutes of measurement time or more. A one-hour average load is therefore a reasonable approximation of a load period corresponding to the test method.

## Condition 25, $SO_2$ Monitoring, Recordkeeping, and Reporting

**Applicability:** This condition incorporates NSPS Subpart GG $SO_2$ emission and sulfur compound limits. The Permittee may not allow equipment to violate these standards.

**Factual Basis*:*** Monitoring, recordkeeping, and reporting requirements for this condition are described in NSPS Subpart GG and have been referenced here. No additional monitoring outside of the Subpart GG requirements is necessary to ensure compliance with the NSPS $SO_2$ standard.

*Monitoring*: Condition 25.1 incorporates NSPS Subpart GG fuel sulfur monitoring requirements and cites the fuel gas monitoring requirements of the EPA approved alternative monitoring plan and schedule granted BPXA in accordance with 40 C.F.R. 60.334(b)(2). EPA approved the alternative fuel gas monitoring plan and schedule in correspondence dated May 8, 1996, August 19, 1996, and October 2, 1997.



For liquid fuel sulfur monitoring, the requirements of 40 C.F.R. 60.334(b)(1) are cited. Alternatively, the Permittee may monitor liquid fuel sulfur in accordance with a custom schedule approved by EPA as allowed by 40 C.F.R. 60.334(b)(2).

*Recordkeeping*: The Permittee is required to maintain records of all sulfur monitoring data required by NSPS Subpart GG for five years as set out in 18 AAC 50.350(h)(5). This requirement is stated in condition 65.

*Reporting:* NSPS Subpart GG fuel sulfur reporting requirements, as established under the approved custom fuel monitoring schedule, are incorporated in the permit in condition 25.3. Although the approved monitoring plan, dated May 8, 1996, allows the Permittee to report the fuel data annually, BPXA has requested that the permit require semi-annual reporting. For the purpose of the EEMSP reports and summary report required under 40 CFR 60.7(c) and (d), the Permittee is required to, report any periods during which the sulfur content of the fuel being fired in the turbine exceeds 0.8 percent by weight, as excess emissions. In condition 25.3c the Department requests that copies of the results from the monitoring requirements in condition 25.1 be included in the facility operating report required under condition 68.

## Conditions 26 through 33 (Section 6), Visible Emissions and PM Monitoring Plan

**Applicability:** Apply because these conditions detail the monitoring, recordkeeping, and reporting required in conditions 3 and 4.

**Factual Basis:** Each permit term and condition must include MR&R requirements showing verifiable compliance with each permit term and condition. The Permittee must establish by actual visual observations which can be supplemented by other means, such as a defined Facility Operation and Maintenance Program, that the facility is in continuous compliance with the State's emission standards for visible emissions and particulate matter. The correlation between particulate matter and visible emissions that is the basis for this monitoring procedure is discussed under conditions 3 and 4.

These conditions detail a stepwise process for monitoring compliance with the State's visible emissions and particulate matter standards for liquid fuel fired sources. Equipment types at Gathering Center #1 covered by these conditions are liquid fuel fired internal combustion engines and turbines, and dual fuel fired heaters. Initial monitoring frequency schedules are established along with subsequent reductions or increases in frequency depending on the results of the self-monitoring program. The monitoring frequency in condition 26 is not as frequent as in 18 AAC 50.346(c) because all the monitored equipment is either emergency equipment or fired using liquid fuel only in emergencies and are expected to seldom experience more than 400 hours of operation per year.

Monitoring frequencies for equipment fired using liquid hydrocarbon fuels are detailed in these conditions.

Reasonable action thresholds are established in these conditions that require the Permittee to progressively address potential visible emission problems from sources either through maintenance programs and/or more rigorous tests that will quantify whether a specific emission standard has been exceeded.

More details are found in the Factual Basis statement for conditions 3 and 4.



## Condition 34 (Section 6), Visible Emissions MR&R Plan for Flares

**Applicability:** Applies because this condition details the monitoring, recordkeeping, and reporting required to demonstrate compliance with condition 3 for gas-fired flares.

**Factual Basis:** Condition 34 was developed to provide a standardized version of flare monitoring that is not dependent upon the type or design of upstream equipment. It has been claimed that gas-fired flares normally burn without emitting visible emissions, but actual field data demonstrating this assumption is not available. However, gas-fired flares have been shown to smoke when a control device, i.e. a knockout drum, flare scrubber, gas or steam assist, or vapor recovery system malfunctions. Thus, the condition sets out a protocol to collect actual field data to determine compliance with the 20% opacity standard for flares.

A recent Department analysis of industry flaring operations indicates that 49% of the gas flared (by volume) is for pilot/purge, 25% is for flaring less than one hour, and 26% is for flaring that lasts more than one hour. Pilot/purge flaring constitutes half of all flaring by volume and is continuous in nature and can be observed at any time. This type of flaring has not caused violations of the opacity standard in the past and can be checked at any time by agency inspectors. The remaining half of the flaring volume is split evenly between less than and greater than one-hour duration. Therefore, the monitoring scheme in this condition addresses the half of the non-continuous flaring operations that are scheduled and for which a certified observer can reasonably be located onsite.

Since it is impractical to require facilities to have a certified Method-9 opacity reader on site for unpredictable emergency flaring, the monitoring protocol requires Method-9 readings only during scheduled flare events. Scheduled events such as those generated by maintenance activities and well testing of greater than one-hour in duration will be observed. These one-hour events are currently quantified and reported to the Alaska Oil and Gas Conservation Commission for other reasons and thus provides a confirming information record of the occurrence of these events. Only those events as defined in the condition need to be monitored. If no events meeting this definition occur during the life of the permit then no monitoring is required.

Since only flaring that is scheduled and exceeds one hour is required to be observed, operators will have time to provide certified Method-9 readers onsite. Most oil and gas production facilities in Alaska are located at remote sites, so it is not reasonable to self-monitor all or even a large sample of the flaring that occurs. Data collected from planned events will help the Department refine this monitoring scheme during future permit cycles. Process upsets and emergency events that may or may not exceed one hour occur randomly and do not lend themselves easily to periodic monitoring. At this time, the Department will rely on facility excess emission reports, citizen complaints, and agency inspections for information concerning these short term and emergency events.

## Conditions 35 and 36, Halon Prohibitions

**Applicability:** These prohibitions apply to all facilities that use halon for fire extinguishing and explosion inertion. The Gathering Center #1 uses halon and is therefore subject to the federal regulations contained in 40 CFR 82.



**Factual Basis:** These conditions incorporate applicable 40 CFR 82 requirements. The Permittee may not cause or allow violations of these prohibitions. No additional MR&R requirements are required to ensure compliance with these federal requirements.

## Conditions 37 through 40, Insignificant Sources

**Applicability:** These general emission standards apply to all industrial processes fuel-burning equipment, and incinerators regardless of size.

**Factual Basis:** Conditions 37 through 40 require the Permittee to comply with the general standards for insignificant sources. The Permittee may not cause or allow their equipment to violate these standards. Insignificant sources are not listed in the permit unless specific monitoring, recordkeeping and reporting are necessary to ensure compliance.

The Department finds that the insignificant sources at this facility do not need specific monitoring, recordkeeping and reporting to ensure compliance with these conditions.

## Condition 41, NESHAPs Subpart A, Applicability Determination

**Applicability:** NESHAPs Subpart A requirements apply to facilities categorized in 40 C.F.R. 63.

**Factual Basis:** The condition requires the Permittee to retain records of NESHAP applicability determinations.

### Condition 42, Asbestos NESHAP

**Applicability:** The asbestos demolition and renovation requirements apply if the Permittee engages in asbestos demolition or renovation.

**Factual Basis:** The condition requires the Permittee to comply with asbestos demolition or renovation requirements in 40 C.F.R. 61, Subpart M. Because these regulations include adequate monitoring and reporting requirements and because the Permittee is not currently engaged in such activity, simply citing the regulatory requirements is sufficient to ensure compliance with these federal regulations.

### Condition 43, Refrigerant Recycling and Disposal

**Applicability:** Applies if the Permittee engages in the recycling or disposal of certain refrigerants.

**Factual Basis:** The condition requires the Permittee to comply with the standards for recycling and emission reduction of refrigerants set forth in 40 C.F.R. 82, Subpart F, that will apply if the Permittee uses certain refrigerants. Because these regulations include adequate monitoring and reporting requirements and because the Permittee is not currently engaged in such activity, simply citing the regulatory requirements is sufficient to ensure compliance with this federal regulation.

### Condition 44, Good Air Pollution Control Practice



**Applicability:** Applies to all sources, **except** NSPS regulated sources, i.e. Source ID(s) 1, 2, and 5 through 11, 20, 26, 38, and 39.

**Factual Basis:** The condition requires the Permittee to comply with good air pollution control practices for all sources.

Maintaining and operating equipment in good working order is fundamental to preventing unnecessary or excess emissions. Standard conditions for monitoring compliance with emission standards are based on the assumption that good maintenance is performed. Without appropriate maintenance, equipment can deteriorate more quickly than with appropriate maintenance. If appropriate maintenance is not applied to the equipment, the Department may have to apply more frequent periodic monitoring requirements (unless the monitoring is already continuous) to ensure that the monitoring results are representative of actual emissions.

The Permittee is required to keep maintenance records to show that proper maintenance procedures were followed, and to make the records available to the Department. The Department may use these records as a trigger for requesting source testing if the records show that maintenance has been deferred.

### Condition 45, Dilution

**Applicability:** This state regulation applies to the Permittee because the Permittee is subject to emission standards in 18 AAC 50.

**Factual Basis:** The condition prohibits the Permittee from diluting emissions as a means of compliance with any standard in 18 AAC 50. No specific monitoring for this condition is practical. Other than the required annual certification, no monitoring, recordkeeping or reporting is necessary for this condition. The Permittee presently does not dilute emissions. Dilution would probably require a physical change to the facility. A reasonable inquiry and certification by a responsible official as to whether such changes occurred over the reporting period is sufficient to assure compliance.

### Condition 46, Reasonable Precautions to Prevent Fugitive Dust

**Applicability:** Bulk material handling requirements apply to the Permittee because the Permittee could engage in bulk material handling, transporting, or storing; or will engage in industrial activity at the facility.

**Factual Basis:** The underlying regulation, 18 AAC 50.045(d), requires the Permittee to take reasonable action to prevent particulate matter (PM) from being emitted into the ambient air.

### Condition 47, Stack Injection

**Applicability:** Stack injection requirements apply to the facility because the facility contains a stack or source constructed or modified after November 1, 1982.

**Factual Basis:** The condition prohibits the Permittee from releasing materials other than process emissions, products of combustion, or materials introduced to control pollutant emissions from a stack (i.e. disposing of material by injecting it into a stack). No specific monitoring for this condition is practical. Other than the required annual certification, no monitoring, recordkeeping or reporting is necessary for this condition. The Permittee presently does not inject wastes into stacks. Waste injection would probably require a physical change to the facility. A reasonable inquiry and certification by a responsible official as to whether such changes occurred over the reporting period is sufficient to assure compliance. Compliance is ensured by inspections, because the source or stack would need to be modified to accommodate stack injection.



### Condition 48, Open Burning

**Applicability:** The open burning state regulation in 18 AAC 50.065 applies to the Permittee if the Permittee conducts open burning at the facility.

**Factual Basis:** The condition requires the Permittee to comply with the regulatory requirements when conducting open burning at the facility.

More extensive monitoring and recordkeeping is not warranted because the Permittee does not conduct open burning as a routine part of their business. Also, most of the requirements are prohibitions, which are not easily monitored. Additional monitoring is achieved through condition 49, which requires a record of complaints. Therefore, the Department does not believe that additional monitoring is warranted.

### Condition 49, Air Pollution Prohibited

**Applicability:** Air Pollution Prohibited requirements apply to the facility because the facility will have emissions.

**Factual Basis:** The condition prohibits the Permittee from causing any emission which is injurious to human health or welfare, animal or plant life, or property, or which would unreasonably interfere with the enjoyment of life or property. While the other permit conditions and emissions limitation should ensure compliance with this condition, unforeseen emission impacts can cause violations of this standard. These violations would go undetected except for complaints from affected persons. Therefore, to monitor compliance, the Permittee must monitor and respond to complaints.

The Permittee is required to report any complaints and injurious emissions. The Permittee must keep records of the date, time, and nature of all complaints received and summary of the investigation and corrective actions undertaken for these complaints and to submit copies of these records upon request of the Department.

The Department will determine whether the necessary actions were taken. No corrective actions are necessary if the complaint is frivolous or there is not a violation of 18 AAC 50.110, however this condition is intended to prevent the Permittee from prejudging that complaints are invalid.

### Condition 50, Technology-Based Emission Standard

**Applicability:** Technology Based Emission Standard requirements apply to the facility because the facility contains equipment subject to a technology-based emission standard, such as BACT, MACT, LAER, NSPS or other "technologically feasible" determinations.



**Factual Basis:** The Permittee is required to take reasonable steps to minimize emissions if certain activity causes an exceedance of any technology-based emission standard in this permit. The conditions of this permit list applicable technology-based emission standards and require excess emission reporting for each standard in accordance with condition 66. Excess emission reporting under condition 66 requires information on the steps taken to minimize emissions; the report required under condition 66 is adequate monitoring for compliance with this condition.

### Condition 51, Permit Renewal

**Applicability:** Applies if the Permittee intends to renew the permit.

**Factual Basis:** The Permittee is required to submit an application for permit renewal by the specific dates applicable to Gathering Center #1 as listed in this condition. Monitoring, recordkeeping, and reporting for this condition consist of the application submittal.

### Condition 52, Requested Source Tests

**Applicability:** Applies because this is a standard condition to be included in all permits.

**Factual Basis:** The Permittee is required to conduct source tests as requested by the Department. Monitoring consists of conducting the requested source test.

### Conditions 53 through 55, Operating Conditions, Reference Test Methods, Excess Air Requirements

**Applicability:** Apply because the Permittee is required to conduct source tests by this permit.

**Factual Basis:** The Permittee is required to conduct source tests as set out in conditions 53 through 55. These conditions supplement the specific monitoring requirements stated elsewhere in this permit. The test reports required by condition 60 adequately monitor compliance with conditions 53 through 55.

### Condition 56, Test Exemption

**Applicability:** Applies when the source exhaust is observed for visible emissions.

**Factual Basis:** As provided in 18 AAC 50.345(a), 5/03/02, the requirements for test plans, notifications and reports do not apply to visible emissions observations by smoke readers, except in connection with required particulate matter testing.

### Conditions 57 through 60, Test Deadline Extension, Test Plans, Notifications and Reports

**Applicability:** Apply because the Permittee is required to conduct source tests by this permit.

**Factual Basis:** Standard conditions 18 AAC 50.345(l) - (o) are incorporated through these conditions. Because these standard conditions supplement specific monitoring requirements stated elsewhere in this permit, no MR&R is required. The source test itself is adequate to monitor compliance with this condition.



### Condition 61, Particulate Matter (PM) Calculations

**Applicability:** Applies when the Permittee tests for compliance with the PM standard.

**Factual Basis:** The condition incorporates a regulatory requirement for PM source tests. Because this condition supplements specific monitoring requirements stated elsewhere in this permit, no MR&R is required.

### Condition 62, Certification

**Applicability:** This is a standard condition to be included in all permits. Applies because every permit requires the Permittee to submit reports.

**Factual Basis:** This condition requires the Permittee to certify all reports submitted to the Department. To ease the certification burden on the Permittee, the condition allows the excess emission reports to be certified with the facility operating report, even though it must still be submitted more frequently than the facility operating report. This condition supplements the reporting requirements of this permit.

### Condition 63, Submittals

**Applicability:** Applies because the Permittee is required to send reports to the Department.

**Factual Basis:** This condition requires the Permittee to send submittals to the address specified in this condition. Receipt of the submittal at the correct Department office is sufficient monitoring for this condition. This condition supplements the reporting requirements of this permit.

### Condition 64, Information Requests

**Applicability:** Applies to all Permittees, and incorporates a standard condition.

**Factual Basis:** This condition incorporates a standard condition in regulation, which requires the Permittee to submit information requested by the Department. Receipt of the requested information is adequate monitoring.

### Condition 65, Recordkeeping Requirements

**Applicability:** Applies because the Permittee is required by the permit to keep records.

**Factual Basis:** The condition restates the regulatory requirements for recordkeeping, and supplements the recordkeeping defined for specific conditions in the permit. The records being kept provide adequate evidence of compliance with this requirement.

### Condition 66, Excess Emission and Permit Deviation Reports

**Applicability:** Applies when the emissions or operations deviate from the requirements of the permit.

**Factual Basis:** This condition satisfies two state regulations related to excess emissions - the technology-based emission standard regulation and the excess emission regulation. Although there are some differences between the regulations, the condition satisfies the requirements of each regulation.

The reports themselves and the other monitoring records required under this permit provide an adequate monitoring of whether the Permittee has complied with the condition.



### Condition 67, NSPS and NESHAP Reports

**Applicability:** Applies to facilities subject to NSPS and NESHAP federal regulations.

**Factual Basis:** The condition supplements the specific reporting requirements in 40 C.F.R. 60 and 40 C.F.R. 61. The condition does not need any MR&R. The reports themselves are adequate monitoring for compliance with this condition.

### Condition 68, Facility Operating Reports

**Applicability:** Applies to all permits.

**Factual Basis:** The condition restates the requirements for reports listed in regulation. The condition supplements the specific reporting requirements elsewhere in the permit and does not need any MR&R. The reports themselves are adequate monitoring for compliance with this condition.

### Condition 69, Annual Compliance Certification

**Applicability:** Applies to all Permittees.

**Factual Basis:** This condition specifies the periodic compliance certification requirements, and specifies a due date for the annual compliance certification. Because this requirement is a report, no MR&R is needed.

## Conditions 70 through 76, Standard Conditions

**Applicability:** Apply because these are standard conditions to be included in all permits.

**Factual Basis:** These are standard conditions required for all operating permits.

## Condition 77, Permit Shield

**Applicability:** Applies because the Permittee has requested a shield for the applicable requirements listed under this condition.

**Factual Basis:** Table 5 of Operating Permit No. 182TVP01 shows the permit shields that the Department granted to the Permittee. The permit conditions set forth the requirements that the Department determined were not applicable to the facility. The following table shows the requests that were denied and the reason that they were denied. The Department based the determinations on the permit application, past operating permit, construction permits and inspection reports.

**Table G - Permit Shields Denied**

| SHIELD REQUESTED FOR: | REASON FOR SHIELD REQUEST: | REASON FOR REQUEST DENIAL: |
|---|---|---|
| **Facility-Wide** | | |
| 18 AAC 50.045(b) – Prohibitions | The permit implements all applicable air quality requirements for the facility. Since compliance with the permit will constitute compliance with applicable local, state, or federal air quality laws, this requirement is not applicable to the facility. | These prohibitions are ongoing requirements and therefore cannot be shielded. The prohibitions have not been placed in the permit because they add no value to the permit with respect to controlling facility emission sources. These prohibitions remain in effect because they are in regulation whether they appear in the facility operating permit or not.<br><br>Shielding the applicant from subparagraph (b), for instance, would have the effect of shielding the applicant from all requirements contained in the Air Quality Control Regulations including the requirement to obtain a permit if the shield requested is granted. |
| 18 AAC 50.045(c) – Prohibitions | This requirement will be implemented through 18 AAC 50.201, which is otherwise addressed in the permit. This requirement is not applicable because the department will impose any special requirements to protect ambient air quality through permit conditions adopted under 50.201. | |
| AQC Permit 9673-AA003 Condition 1-4, 11-14, 18-20, 23-24 | These permit conditions are not "facility specific requirements". Therefore, they are not required in the Title V application [ref. 18 AAC 50.335(e)(5)] | There is no need to shield the Permittee from requirements of previous operating permits. According to state regulation |

| SHIELD REQUESTED FOR: | REASON FOR SHIELD REQUEST: | REASON FOR REQUEST DENIAL: |
|---|---|---|
| AQC Permit 9673-AA003 Condition 2 | The proposed Title V permit conditions have included the most stringent applicable emission standards. This requirement is no longer needed. | 18 AAC 50.340(i**) Permit Continuity** an operator must comply with a permit issued before January 18, 1997 until the department issues a Title V operating permit. Therefore, there is no reason to shield BPXA from a permit that they no longer need to comply with once this operating permit is issued.<br><br>Facility-specific conditions from permit number 9673-AA003 that need to be carried forward into this operating permit according to regulation 18 AAC 50.350(d)(1)(D) have been identified in Table B of the basis. |

## Attachment A

**Figure 1--Summary Report -- Excess Emission and Monitoring System Performance**

Pollutant (Circle One—$SO_2$/$NO_X$/fuel sulfur)
Reporting period dates:
From __________to ___________
Company:
Emission Limitation _____________________________________________
Address:
Monitor Manufacturer and Model No. ________________________________
Date of Latest CMS (CEMS and PEMS) Certification or Audit

_____________________________
Process Unit(s) Description:
Total source operating time in reporting period[1]________________________

| **Emission data summary**[1] | **CMS (CEMS and PEMS) performance summary**[1] |
|---|---|
| 1. Duration of excess emissions in reporting period due to:<br><br>a. Startup/shutdown _____<br>b. Control equipment problems _____<br>c. Process problems _____<br>d. Other known causes _____<br>e. Unknown causes _____<br>2. Total duration of excess emission _____<br>3. Total duration of excess emissions X (100) [Total source operating time] ______%[2] | 1. CMS (CEMS and PEMS) downtime in reporting period reporting period due to:<br>a. Monitor equipment malfunctions ____<br>b. Non-Monitor equipment malfunctions ____<br>c. Quality assurance calibration ____<br>d. Other known causes ____<br>e. Unknown causes ____<br>2. Total CMS (CEMS and PEMS) Downtime ____<br>3. [Total CMS (CEMS and PEMS) Downtime] X (100) /[Total source operating time] _______%[2] |

[1] For opacity, record all times in minutes. For gases, record all times in hours.
[2] For the reporting period: If the total duration of excess emissions is 1 percent or greater of the total operating time or the total CMS (CEMS or PEMS) downtime is 5 percent or greater of the total operating time, both the summary report form and the excess emission report described in this condition shall be submitted.



On a separate page, describe any changes since last quarter in CMS, process or controls. I certify that the information contained in this report is true, accurate, and complete.

-------------------------------------------------------------------
Name
-------------------------------------------------------------------
Signature