

DEPARTMENT OF ENVIRONMENTAL CONSERVATION

Standard Operating Permit Condition IX – Visible Emissions and Particulate Matter Monitoring Plan for Liquid-Fired Emission Units

**Permit Condition for Air Quality Permits
Adopted by Reference in 18 AAC 50.346**

August 25, 2004

Revised {adoption date of these regulations}[AUGUST 20, 2008]

Standard Operating Permit Condition IX –Visible Emissions and Particulate Matter Monitoring Plan for Liquid-Fired Emission Units

Emission Unit or Stationary Source Categories This Condition Applies to:

- Conditions IX.1 – IX.4 for visible emissions apply to liquid-fired emission units subject to the opacity standard of 18 AAC 50.055(a)(1).
- Conditions IX.5 – IX.8 apply to diesel engines and liquid-fired turbines subject to 18 AAC 50.055(b)(1).

Standard permit condition IX does not apply to emission units that are insignificant under 18 AAC 50.326(d)-(i), which could include standby emission units.

The department will use Standard Permit Condition IX in any operating permit unless the department determines that emission unit or stationary source specific conditions more adequately meet the requirements of 18 AAC 50.

Circumstances where emission unit or stationary source specific conditions more adequately meet 18 AAC 50 include:

1. if the department finds that particulate matter and opacity emissions data available for the emission unit or for the equipment make and model is sufficient to demonstrate that there is a different relationship between opacity and particulate matter than that used as the basis for standard permit condition IX;
2. emission unit specific conditions are requested for conditions IX.5 - IX.8 for turbines with very wide stacks;
3. the department determines that a different frequency of visible emissions monitoring is necessary to assure compliance because of the characteristics of the emission unit;
4. the department determines that, to assure that an emission unit complies with the applicable standard, visible emissions monitoring is necessary during a particular phase of operation.

Permit Wording:

Section 1.State Requirements

Visible Emissions Standards

1. Industrial Process and Fuel-Burning Equipment Visible Emissions. The Permittee shall comply with the following:
 - 1.1 Do not cause or allow visible emissions, excluding condensed water vapor, emitted from EU ID(s) *<insert EU ID numbers>* listed in Table *<insert Table of Emission Units designation>* to reduce visibility through the exhaust effluent by more than 20 percent averaged over any six consecutive minutes.

[18 AAC 50.040(j); 50.326(j); and 50.055(a)(1)]
[40 C.F.R. 71.6(a)(1)]
 - 1.2 For EU ID(s) *<insert EU ID numbers>*, monitor, record, and report in accordance with Conditions 3 - 5.
 - 1.3 For EU ID(s) *<insert EU ID numbers>*, burn only gas as fuel. Monitoring for these emission unit(s) shall consist of a certification in each operating report under Condition *<insert Operating Report condition number>* that each of these emission unit(s) fired only gas. Report under Condition *<refer to excess emission/permit deviations condition number>* if any fuel is burned other than gas.
 - 1.4 For EU ID(s) *<insert EU ID numbers>*, as long as they do not exceed the limits in Condition(s) *<insert number(s) of Condition(s) that state EU(s) operating limits>*, monitoring shall consist of an annual compliance certification Condition *<refer to Annual Compliance Certification condition number>* with the opacity standard.
 - 1.5 For EU ID(s) *<insert EU ID numbers>*, use only gas as primary fuel. Monitoring for these emission unit(s) shall consist of a certification in each operating report required in Condition *<insert Operating Report condition number>* that each of these emission unit(s) fired only gas. If operating on a back-up liquid fuel, the Permittee shall monitor, record, and report according to Condition 15.
 - 1.6 For EU ID(s) *<insert EU ID numbers>*, monitor, record, and report in accordance with Condition 6.

[18 AAC 50.040(j); 50.326(j) and 50.346(c)]
[40 C.F.R. 71.6(a)(3)]
2. Incinerator Visible Emissions. The Permittee shall comply with the following:
 - 2.1 Do not cause or allow visible emissions, excluding condensed water vapor, through the exhaust of EU ID(s) *<insert EU ID numbers>*, to reduce visibility by more than 20 percent averaged over any six consecutive minutes.

[18 AAC 50.040(j); 50.326(j); and 50.050(a)]
[40 C.F.R. 71.6(a)(1)]
 - 2.2 (Use Stationary Source-specific VE MR&R for incinerators.)

Visible Emissions Monitoring, Recordkeeping, and Reporting

Liquid Fuel-fired Sources (EU IDs <insert EU ID numbers>)

- 3. Visible Emissions Monitoring.** The Permittee shall observe the exhaust of EU ID(s) <insert EU ID numbers> for visible emissions using either the Method 9 Plan under Condition 3.1 or the Smoke/No-Smoke Plan under Condition 3.2. The Permittee may change visible-emissions plans for an emission unit at any time unless prohibited from doing so by Condition 3.3.

[18 AAC 50.040(j); 50.326(j) and 50.346(c)]
[40 C.F.R. 71.6(a)(3)(i)]

- 3.1 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. Except as provided in Condition 3.4, for EU ID(s) <insert EU ID numbers>, observe exhaust for 18 minutes within six months after the issue date of this permit. For any unit, observe exhaust for 18 minutes within 14 calendar days after changing from the Smoke/No-Smoke Plan of Condition 3.2.
 - (i) For any units replaced during the term of this permit, observe exhaust for 18 minutes within 30 days of startup.
 - (ii) For each existing emission unit that exceeds the operational threshold in Condition IX.1.4, observe the exhaust for 18 minutes of operations within 30 days after the calendar month during which that threshold has been exceeded, or within 30 days of the unit's next scheduled operations, whichever is later.
- b. Monthly Method 9 Observations. After the first Method 9 observation, perform 18-minute observations at least once in each calendar month that an emission unit operates.
- c. Semiannual Method 9 Observations. After observing emissions for three consecutive operating months under Condition 3.1a(i), unless a six-minute average is greater than 15 percent and one or more observations are greater than 20 percent, perform 18-minute observations; [AT LEAST SEMIANNUALLY.

TAKE SEMIANNUAL OBSERVATIONS BETWEEN FOUR AND SEVEN MONTHS AFTER THE PREVIOUS SET OF OBSERVATIONS.]

- (i) within six months after the preceding observation; or

(ii) **for an emission unit with intermittent operations, during the next scheduled operation immediately following six months after the preceding observation.**

- d. **Annual Method 9 Observations.** After at least two semiannual 18-minute observations, unless a six-minute average is greater than 15 percent and one or more individual observations are greater than 20 percent, perform 18-minute observations; [AT LEAST ANNUALLY.

TAKE ANNUAL OBSERVATIONS BETWEEN 10 AND 13 MONTHS AFTER THE PREVIOUS OBSERVATIONS.]

(i) **Within twelve months after the preceding observations; or**

(ii) **For an emission unit with intermittent operations, during the next scheduled operation immediately following twelve months after the preceding observation.**

- e. **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 emission unit to at least monthly intervals, until the criteria in Condition 3.1b for semiannual monitoring are met.

3.2 Smoke/No Smoke Plan. Observe the exhaust for the presence or absence of visible emissions, excluding condensed water vapor.

- a. **Initial Monitoring Frequency.** Observe the exhaust during each calendar day that an emission unit operates.
- b. **Reduced Monitoring Frequency.** After the emission unit has been observed on 30 consecutive operating days, if the emission unit operated without visible smoke in the exhaust for those 30 days, then observe emissions at least once in every calendar month that an emission unit operates.
- c. **Smoke Observed.** If smoke is observed, either begin the Method 9 Plan of Condition 3.1 or perform the corrective action required under Condition 3.3.

3.3 Corrective Actions Based on Smoke/No Smoke Observations. If visible emissions are present in the exhaust during an observation performed under the Smoke/No Smoke Plan of Condition 3.2, then the Permittee shall either follow the Method 9 plan of Condition 3.1 or

- a. initiate actions to eliminate smoke from the emission unit within 24 hours of the observation;

- b. keep a written record of the starting date, the completion date, and a description of the actions taken to reduce smoke; and
- c. after completing the actions required under Condition 3.3a,
 - (i) take Smoke/No Smoke observations in accordance with Condition 3.2.
 - (A) at least once per day for the next seven operating days and until the initial 30 day observation period is completed; and
 - (B) continue as described in Condition 3.2b; or
 - (ii) if the actions taken under Condition 3.3a do not eliminate the smoke, or if subsequent smoke is observed under the schedule of Condition 3.3c(i)(A), then observe the exhaust using the Method 9 Plan unless the department gives written approval to resume observations under the Smoke/No Smoke Plan; after observing smoke and making observations under the Method 9 Plan, the Permittee may at any time take corrective action that eliminates smoke and restart the Smoke/No Smoke Plan under Condition 3.2a.

3.4 In the case of renewal permits, the permittee shall have the option to continue an established monitoring frequency rather than re-starting the cycle of monitoring from the beginning as in Condition 3.1a. The permittee shall make note of this option in the first Operating Report required by Condition *<insert Operating Reports condition number>* submitted under the renewed permit.

4. Visible Emissions Recordkeeping. The Permittee shall keep records as follows:

[18 AAC 50.040(j); 50.326(j) and 50.346(c)]
[40 C.F.R. 71.6(a)(3)(ii)]

4.1 If using the Method 9 Plan of Condition 3.1,

- a. the observer shall record
 - (i) the name of the stationary source, emission unit and location, stationary source type, observer's name and affiliation, and the date on the Visible Emissions Field Data Sheet in *<insert Visible Emissions Field Data Sheet Section number>*;
 - (ii) the time, estimated distance to the emissions location, sun location, approximate wind direction, estimated wind speed, description of the sky Condition (presence and color of clouds), plume background, and operating rate (load or fuel consumption rate **or best estimate if unknown**) 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 in Section *<insert Visible Emissions Section number>*, 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 averages observed.
- 4.2 If using the Smoke/No Smoke Plan of Condition 3.2, record the following information in a written log for each observation and submit copies of the recorded information upon request of the department:
- a. the date and time of the observation;
 - b. from Table *<insert Table of Emission Units designation>*, the ID of the emission unit observed;
 - c. whether visible emissions are present or absent in the exhaust;
 - d. a description of the background to the exhaust during the observation;
 - e. if the emission unit starts operation on the day of the observation, the startup time of the emission unit;
 - f. name and title of the person making the observation; and
 - g. operating rate (load or fuel consumption rate).

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

[18 AAC 50.040(j); 50.326(j) and 50.346(c)]
[40 C.F.R. 71.6(a)(3)(iii)]

- 5.1 include in each stationary source operating report under Condition *<insert Operating Reports condition number>*:

- a. which visible-emissions plan of Condition 3 was used for each emission unit; if more than one plan was used, give the time periods covered by each plan;
 - b. for each emission unit under the Method 9 Plan,
 - (i) copies of the observation results (i.e. opacity observations) for each emission unit that used the Method 9 Plan, except for the observations the Permittee has already supplied to the department; and
 - (ii) a summary to include:
 - (A) number of days observations were made;
 - (B) highest six-minute average observed; and
 - (C) dates when one or more observed six-minute averages were greater than 20 percent;
 - c. for each emission unit under the Smoke/No Smoke Plan, the number of days that Smoke/No Smoke observations were made and which days, if any, that smoke was observed; and
 - d. a summary of any monitoring or record keeping required under Conditions 3 and 3.3c(ii) that was not done;
- 5.2 report under Condition *<inset Excess Emissions and Permit Deviations condition number>*:
- 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 3 was not performed when required, report within three days of the date the monitoring was required.

Flares, EU ID(s) ____

6. Visible Emissions Monitoring, Recordkeeping, and Reporting. The Permittee shall observe one daylight flare event¹ within 12 months of the preceding flare event observation. If no event exceeds 1 hour within that 12-month period, then the Permittee shall observe the next daylight flare event. [THE PERMITTEE SHALL OBSERVE SIX FLARE EVENTS OCCURRING DURING THE LIFE OF THIS PERMIT INCLUDING AT LEAST ONE EVENT PER CALENDAR YEAR.]

6.1 Monitor flare events using Method-9.

¹ 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.

- 6.2 Record the following information for observed events:
- the flare(s) EU ID number;
 - results of the Method-9 observations;
 - reason(s) for flaring;
 - date, beginning and ending time of event; and
 - volume of gas flared.
- 6.3 Monitoring of a flare event may be postponed for safety or weather reasons, or because a qualified observer is not available. **If monitoring of a flare event is postponed for any of the reasons described in this condition,** [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 **operating** report required by Condition *<insert Operating Reports condition number>* an explanation of the reason the event was not monitored.
- 6.4 Attach copies of the records required by Condition 6.2 with the stationary source operating report required by Condition *<insert Operating Reports condition number>*.
- 6.5 Report under Condition *<insert Excess Emissions and Permit Deviations condition number>* whenever the opacity standard in Condition 1.1 is exceeded.
- [18 AAC 50.040(j) and 50.326(j)(4)]
[40 C.F.R. 71.6(a)(3) & (c)(6)]

Particulate Matter Emissions Standards

7. **Industrial Process and Fuel-Burning Equipment Particulate Matter.** The Permittee shall not cause or allow particulate matter emitted from EU ID(s) *<insert EU ID numbers>* listed in Table *<insert reference to Table of Emission Units>* to exceed 0.05 grains per cubic foot of exhaust gas corrected to standard conditions and averaged over three hours.
- [18 AAC 50.040(j); 50.326(j); and 50.055(b)(1)]
[40 C.F.R. 71.6(a)(1)]

- 7.1 For EU ID(s) *<insert EU ID numbers>*, monitor, record and report in accordance with Conditions 9 - 11.
- 7.2 For EU ID(s) *<insert EU ID numbers>*, burn only gas as fuel. Monitoring for these emission unit(s) shall consist of a certification in each operating report under Condition *<insert Operating Reports condition number>* that each of these emission unit(s) fired only gas. Report under Condition *<insert Excess Emissions and Permit Deviations Reports condition number>* if any fuel other than gas is burned.

- 7.3 For EU ID(s) *<insert EU ID numbers>*, as long as they do not exceed the limits in Condition *<insert number of condition that states emission unit(s) operating limits>*, monitoring shall consist of an annual compliance certification under Condition *<insert Annual Compliance Certification condition number>* with the particulate matter standard.
- 7.4 For EU ID(s) *<insert EU ID numbers>*, the Permittee must annually certify compliance under Condition *<insert Annual Compliance Certification condition number>* with the particulate matter standard.
- 7.5 For EU ID(s) *<insert EU ID numbers>*, use only gas as primary fuel. Monitoring for these emission unit(s) shall consist of a certification in each operating report required in Condition *<insert Operating Reports condition number>* that each of these emission unit(s) fired only gas. If operating on a back-up liquid fuel, the Permittee shall monitor, record and report according to Condition *<insert VE & PM MR&R for Dual Fuel-Fired Sources condition number>*.

[18 AAC 50.040(j); 50.326(j) and 50.346(c)]
[40 C.F.R. 71.6(a)(3)]

8. **Incinerator Particulate Matter Emissions.** Particulate matter emissions from EU ID(s) *<insert EU ID numbers>* may not exceed the particulate matter standard, as listed in Table A:

[18 AAC 50.040(j); 50.326(j) and 50.050(b)]
[40 C.F.R. 71.6(a)(1)]

Table A - Particulate Matter Standards for Incinerators

Incinerator Rated Capacity	Particulate Matter Standard
Less than 1000 lbs./hr	No Limits
EU ID(s) <i><insert EU ID numbers></i> : Greater than or equal to 1000 lbs./hr but less than 2000 lbs./hr	0.15 grains/cubic foot of exhaust gas corrected to 12 percent CO ₂ and standard Conditions, averaged over three hours
EU ID(s) <i><insert EU ID numbers></i> : Greater than or equal to 2000 lbs./hr	0.08 grains/cubic foot of exhaust gas corrected to 12 percent CO ₂ and standard Conditions, averaged over three hours
EU ID(s) <i><insert EU ID numbers></i> : Burns waste containing more than 10 percent wastewater treatment plant sludge by dry weight from a municipal wastewater treatment plant that serves 10,000 or more persons	0.65 grams per kilogram of dry sludge input

- 8.1 (Use Stationary Source-specific PM MR&R for incinerators.)

[18 AAC 50.040(j) and 50.326(j)(4)]
[40 C.F.R. 71.6(a)(3) and 71.6(c)(6)]

PM Monitoring, Recordkeeping and Reporting

Liquid-Fired Sources (EU IDs <insert EU ID numbers>)

- 9. Particulate Matter Monitoring for Diesel Engines and Liquid-Fired Turbines.** The Permittee shall conduct source tests on diesel engines and liquid-fired turbines, *<identify emission units>*, to determine the concentration of particulate matter (PM) in the exhaust of a source in accordance with Condition 9.

[18 AAC 50.040(j); 50.326(j) and 50.346(c)]
[40 C.F.R. 71.6(a)(3)(i)]

9.1 Within six months of exceeding the criteria of Conditions 9.2a or 9.2b, either

- a. conduct a PM source test according to requirements set out in *<insert Standard Source Test Section number>*; or
- b. make repairs so that emissions no longer exceed the criteria of Condition 9.2; to show that emissions are below those criteria, observe emissions as described in Condition 3.1 under load conditions comparable to those when the criteria were exceeded.

9.2 Conduct the test according to Condition 9.1 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.

9.3 During each one-hour PM source test run, observe the exhaust for 60 minutes in accordance with Method 9 and calculate the average opacity measured during each one-hour test run. Submit a copy of these observations with the source test report.

9.4 The automatic PM source test requirements in Conditions 9.1 and 9.2 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.

- 10. Particulate Matter Record Keeping for Diesel Engines and Liquid-Fired Turbines.** Within 180 calendar days after the effective date of this permit, the Permittee shall record the exhaust stack diameter(s) of EU ID(s) *<list EU ID numbers from the <insert Table of Emission Units designation> in the permit>*. Report the stack diameter(s) in the next operating report under Condition *<insert Operating Reports condition number>*.

[18 AAC 50.040(j); 50.326(j) and 50.346(c)]
[40 C.F.R. 71.6(a)(3)(ii)]

- 11. Particulate Matter Reporting for Diesel Engines and Liquid-Fired Turbines.** The Permittee shall report as follows:

[18 AAC 50.040(j); 50.326(j) and 50.346(c)]
[40 C.F.R. 71.6(a)(3)(iii)]

- 11.1 report under Condition *<insert Excess Emissions and Permit Deviations condition number>*:
- a. the results of any PM source test that exceeds the PM emissions limit; or
 - b. if one of the criteria of Condition 9.2 was exceeded and the Permittee did not comply with either Condition 9.1a or 9.1b, this must be reported by the day following the day compliance with Condition 9.1 was required;
- 11.2 report observations in excess of the threshold of Condition 9.2b within 30 days of the end of the month in which the observations occur;
- 11.3 in each stationary source operating report under Condition *<insert Operating Report condition number>*, include
- a. the dates, EU ID(s), and results when an observed 18-minute average was greater than an applicable threshold in Condition 9.2;
 - b. a summary of the results of any PM testing under Condition 9; and
 - c. copies of any visible emissions observation results (opacity observations) greater than the thresholds of Condition 9.2, if they were not already submitted.

For Liquid-Fired Boilers and Heaters

- 12. Particulate Matter Monitoring.** The Permittee shall conduct source tests on EU ID(s) *<insert EU ID numbers>* to determine the concentration of PM in the exhaust of EU ID(s) *<insert EU ID numbers>* as follows:

[18 AAC 50.040(j) and 50.326(j)(4)]
[40 C.F.R. 71.6(a)(3)(i) and 71.6(c)(6)]

- 12.1 Conduct a PM source test according to the requirements set out in *<insert Standard Source Test Section>* no later than 90 calendar days after any time corrective maintenance fails to eliminate visible emissions greater than the 20 percent opacity threshold for two or more 18-minute observations in a consecutive six-month period.
- 12.2 During each one-hour PM source test run, observe the exhaust for 60 minutes in accordance with Method 9 and calculate the average opacity measured during each one-hour test run.
- 12.3 The PM source test requirement in Condition 12 is waived for an emission unit if:
- a. a PM source test during the most recent semiannual reporting period on that unit shows compliance with the PM standard since permit issuance, or

- b. if a follow-up visible emission observation conducted using Method-9 during the 90 days shows that the excess visible emissions described in Condition 3.1e no longer occur.

13. Particulate Matter Recordkeeping. The Permittee shall keep records of the results of any PM testing and visible emissions observations conducted under Condition 12.

[18 AAC 50.040(j) and 50.326(j)(4)]
[40 C.F.R. 71.6(a)(3)(ii) and 71.6(c)(6)]

14. Particulate Matter Reporting. The Permittee shall report as follows:

[18 AAC 50.040(j) and 50.326(j)(4)]
[40 C.F.R. 71.6(a)(3)(iii) and 71.6(c)(6)]

14.1 In each stationary source operating report required by Condition *<insert Operating Report condition number>*, include

- a. the dates, EU ID(s), and results when an 18-minute opacity observation was greater than the applicable threshold criterion in Condition 3.1e.
- b. a summary of the results of any PM testing and visible emissions observations conducted under Condition 12.

14.2 Report as excess emissions, in accordance with Condition *<insert Excess Emissions and Permit Deviations condition number>*, any time the results of a source test for PM exceeds the PM emission limit stated in Condition 7.

VE & PM MR&R for Dual Fuel-Fired Sources, EU ID(s) ____

15. The Permittee shall monitor, record and report the monthly hours of operation when operating on a back-up liquid fuel.

15.1 If EU ID(s) *<insert EU ID numbers>* do not exceed 400 hours of operations per calendar year per source on a back-up liquid fuel, monitoring of compliance for visible emissions and particulate matter is not required. Monitoring shall consist of an annual compliance certification under Condition *<insert Annual Compliance Certification condition number>* with Conditions 1.1 and 7.

15.2 EU ID(s) *<insert EU ID numbers>* are subject to the liquid fuel monitoring requirements described in Conditions 3 and 9 if operations exceed 400 hours per calendar year per emission unit on a back-up liquid fuel.

15.3 The Permittee must notify the department and begin monitoring the affected emission unit according to Conditions 3 and 9 no later than 15 days after the end of a calendar month in which the cumulative hours of operation for the calendar year exceed 400 hours on a back-up liquid fuel.

15.4 Report under Condition *<insert Excess Emissions and Permit Deviations condition number>* if the Permittee fails to comply with Condition 15.3.

[18 AAC 50.040(j) and 50.326(j)(4)]
[40 C.F.R. 71.6(a)(3) and 71.6(c)(6)]

REASON FOR THE STANDARD PERMIT CONDITION CHANGES:

Condition 3.1a was modified to account for an emission unit's status change. If the unit is replaced, the permittee will need to conduct an initial observation within 30 days after replacement to ensure the replacement unit can meet the emission standard. Further, if an emission unit status changes from insignificant to one requiring periodic monitoring, record keeping and reporting, then the permittee would conduct the initial observation within a reasonable period of operations.

Conditions 3.1(c) and (d) were changed to allow greater flexibility and reduce periodic monitoring. First, periodic monitoring can be conducted at any time within the six-month or twelve months following the latest observation rather than to be limited within a three month block (ie. 4-7 months or 11-13 months for semi-annual and annual surveillance frequency respectively). If a client conducts an emission unit surveillance at any time, that surveillance can re-set the date for which the next periodic surveillance due.

Further to accommodate intermittently operated emission units such as emergency units or stand-by units, the next surveillance due date will be upon the next scheduled operations after the deadline, such as for readiness testing of such units.

Condition 4.1 was modified to allow for estimating operational parameters for an emission unit that the permittee does not measure and record those parameters.

Condition 6.1 was modified to allow the permittee to conduct visible emission surveillance of scheduled flare events within 12 months of the last observation or during the next scheduled flare event. This provides added flexibility to stationary source permittees equipped with such devices to schedule certified staff to observed scheduled events. Further the revised text allows the permittee to reset the due date whenever the permittee choses to conduct surveillance on the flare. Finally, the revised text provides the permittee an opportunity to conduct the following observation upon the next scheduled event if no one-hour event occurs within twelve months.

STATEMENT OF BASIS FOR THE PERMIT CONDITIONS

The state and federal regulations for each Condition are cited in Operating Permit No. *<Insert Operating Permit Number>*.

Conditions 1 and 3 - 5, 6, & 15 Visible Emissions Standard and MR&R

Legal Basis: These conditions ensure compliance with the applicable requirements in 18 AAC 50.050(a) and 18 AAC 50.055(a).

- 18 AAC 50.055(a) applies to the operation of fuel-burning equipment and industrial processes. EU IDs < > are fuel-burning equipment or industrial processes.
- 18 AAC 50.050 (a) applies to the operation of incinerators. EU IDs < > are incinerators.

U.S. EPA incorporated these standards as revised in 2002 into the State Implementation Plan effective September 13, 2007.

Factual basis: Condition 1 prohibits the Permittee from causing or allowing visible emissions in excess of 18 AAC 50.055(a)(1). Condition **Error! Reference source not found.** prohibits the Permittee from causing or allowing visible emissions in excess of 18 AAC 50.050(a).

MR&R requirements are listed in Conditions 3 through 5, 6, and 15 of the permit.

These conditions have been adopted into regulation as Standard Conditions. The department added a provision that clarifies the option to continue an established monitoring frequency for renewal permits.

The Permittee must establish by actual visual observations that can be supplemented by other means, such as a defined Stationary Source Operation and Maintenance Program that the stationary source is in continuous compliance with the State's emission standards for visible emissions and particulate matter.

These conditions detail a stepwise process for monitoring compliance with the State's visible emissions and particulate matter standards for liquid and gas fired sources. Equipment types covered by these conditions are internal combustion engines, turbines, heaters, boilers, and flares. Initial monitoring frequency schedules are established along with subsequent reductions or increases in frequency depending on the results of the self-monitoring program.

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.

Condition 6 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 percent opacity standard for flares.

A recent department analysis of industry flaring operations indicates that 49 percent of the gas flared (by volume) is for pilot/purge, 25 percent is for flaring less than one hour, and 26 percent 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 stationary source excess emission reports, citizen complaints, and agency inspections for information concerning these short term and emergency events.

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 Fired:

Monitoring – The visible emissions may be observed by either Method-9 or the Smoke/No Smoke plans as detailed in Condition 3. Corrective actions such as maintenance procedures and either 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 stationary source operating report.

Dual Fuel-Fired Sources:

For EU ID(s) <insert EU ID numbers>, as long as they operate only on gas, monitoring consists of an annual certification that only gaseous fuels were used in the equipment. When any of these sources operates on a backup liquid fuel for more than 400 hours in a calendar year, monitoring as detailed in Condition 15 is required for that source in accordance with department Policy and Procedure No. AWQ 04.02.103, Topic # 2, 10/8/04. When any of these sources operates on a backup liquid fuel for less than 400 hours in a calendar year, monitoring for that source consists of an annual certification of compliance with the opacity standard. The 400-hour trigger for additional monitoring applies to each individual unit and not as a combined total for all units.

Insignificant Sources:

For EU ID(s) *<insert EU ID numbers>* no visible emissions monitoring is required because these sources are insignificant sources based on actual emissions and have permit Condition(s) *<insert Condition numbers>* that limit either their hours of operation or fuel consumption. As long as the sources do not exceed these limits, they are insignificant by emissions rate as specified in 18 AAC 50.326(e) and no monitoring is required in accordance with department Policy and Procedure No. AWQ 04.02.103, Topic # 3, 10/8/04. The Permittee must annually certify compliance under Condition *<insert Annual Compliance Certificate Condition>* with the opacity standard.

Flares:

Monitoring for flares (EU ID(s) *<insert EU ID numbers>*) 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 2, Incinerator Visible Emissions and MR&R

Legal Basis: This visible emission standard applies to the operation of any incinerator in Alaska, including an air curtain incinerator.

Factual Basis: The Condition requires the Permittee to comply with the visible emission standard applicable to incinerators. The Permittee may not cause or allow the affected incinerator to violate this standard.

The Permittee is required to monitor, record, and report according to Condition 2.2.

Conditions 7 and 9 - 11, 12 - 14, & 15, Particulate Matter (PM) Standard

Legal Basis: The PM standard applies to operation of all fuel-burning equipment in Alaska. EU ID(s) *<insert EU ID numbers>* 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 7 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 Conditions 9 - 11, 12 - 14, and 15 of the permit.

The Permittee must establish by actual visual observations, which must be supplemented by other means, such as a defined Stationary Source Operation and Maintenance Program that the stationary source is in continuous compliance with the State's emission standards for particulate matter.

These conditions detail a stepwise process for monitoring compliance with the State's particulate matter standards for liquid- and gas-fired sources. Equipment types covered by these conditions are internal combustion engines, turbines, heaters, and boilers. Initial monitoring frequency schedules are established along with subsequent reductions or increases in frequency depending on the results of the self-monitoring program.

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 certify annually that only gaseous fuels are used in the equipment.

Liquid Fired:

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, 2) and results of PM source tests. The Permittee is required to include copies of the results of all visible emission observations with the stationary source operating report.

Dual Fuel-Fired Sources:

For EU ID(s) *<insert EU ID numbers>*, as long as they operate only on gas, monitoring consists of an annual certification that only gaseous fuels were used in the equipment. When any of these sources operates on a backup liquid fuel for more than 400 hours in a calendar year, monitoring as detailed in Conditions 9 and 12 is required for that source in accordance with department Policy and Procedure No. AWQ 04.02.103, Topic # 2, 10/8/04. When any of these sources operates on a backup liquid fuel for less than 400 hours in a calendar year, monitoring for that source consists of an annual certification of compliance with the particulate matter standard. The 400-hour trigger for additional monitoring applies to each individual unit and not as a combined total for all units.

Insignificant Sources:

For EU ID(s) *<insert EU ID numbers>*, no monitoring is required because these sources are insignificant sources based on actual emissions. EU ID(s) *<insert EU ID numbers>* must not exceed operational hour limit(s) as required by Condition(s) *<insert Conditions that apply>*. As long as they operate within these limits, they are considered insignificant sources by emissions as specified in 18 AAC 50.326(e) and no monitoring is required in accordance with department Policy and Procedure No. AWQ 04.02.103, Topic # 3, 10/8/04. The Permittee must annually certify compliance under Condition *<insert condition reference to Annual Compliance Certification condition number>* with the particulate matter standard.

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 8, Incinerator Particulate Matter Emissions and MR&R

Legal Basis: The particulate matter emission standards as listed in Table A apply to the operation of an incinerator based on its rated capacity.

Factual Basis: The Condition requires the Permittee to comply with the particulate matter emission standards applicable to incinerators based on rated capacity. The Permittee may not cause or allow the affected incinerator to violate this standard.

The Permittee is required to monitor, record, and report according to Condition 8.1. For incinerators with a rated capacity of less than 1000 pounds per hour, the Permittee is not required to monitor particulate matter because there is no standard set for such incinerators.