

**DEPARTMENT OF
ENVIRONMENTAL CONSERVATION**



Performance Audits for COMS

Adopted by Reference in 18 AAC 50.030

April 1, 2002

Revised {adoption date of these regulations}

Alaska Department of Environmental Conservation Performance Audits for COMS

Performance audits. The following elements shall be included in performance audits for Continuous Opacity Monitoring Systems (COMS), unless the department gives written approval for unit-specific audit procedures.

- 1 Optical Alignment Assessment.** The status of the optical alignment of the monitor components shall be checked and recorded according to the procedures specified by the monitor manufacturer. Realign as necessary.
- 2 Zero and Upscale Response Assessment.** The zero and upscale response errors shall be determined and recorded according to the calibration drift procedures of 8.1(4)(i) and (ii) in 40 C.F.R. 60, Appendix B, Performance Specification 1 (PS-1), adopted by reference in 18 AAC 50.040(a). The error is defined as the difference (in % opacity) between the correct value and the observed value for the zero and high-level calibration checks.
- 3 Zero Compensation Assessment.** The value of the zero compensation applied at the time of the audit shall be calculated as equivalent opacity, corrected to stack exit conditions as necessary, according to the procedures specified by the manufacturer. Record the compensation applied to the effluent recorded by the monitor system.
- 4 Calibration Error Check.** Conduct a three-point calibration error test using three calibration attenuators that produce outlet pathlength corrected, single-pass opacity values shown in ASTM D 6216-98, section 7.5, adopted by reference in 18 AAC 50.035(c). If the applicable limit is less than 10 percent opacity, use attenuators as described in ASTM D 6216-98, section 7.5 for applicable standards of 10 to 19 percent opacity. Confirm the external audit device produces the proper zero value on the COMS data recorder. Separately, insert each calibration attenuator (low, mid, and high-level) into the external audit device. While inserting each attenuator, (1) ensure that the entire light beam passes through the attenuator; (2) minimize interference from reflected light; and (3) leave the attenuator in place for at least two times the shortest recording interval on the COMS data recorder. Make a total of five nonconsecutive readings for each attenuator. At the end of the test, correlate each attenuator insertion to the corresponding value from the data recorder. Subtract the single-pass calibration attenuator values corrected to the stack exit conditions from the COMS responses. Calculate the arithmetic mean difference, standard deviation, and confidence coefficient of the five measurements value using equations 1-3, 1-4, and 1-5 of PS-1. Calculate the calibration error as the sum of the absolute value of the mean difference and the 95 percent confidence coefficient for each of the three test attenuators using equation 1- 6 of PS-1. Report the calibration error test results for each of the three attenuators.

- 5 **Zero Alignment Assessment.** Compare the COMS simulated zero to the actual clear path zero of the installation. The assessment may be conducted in conjunction with, but prior to, other performance audit elements.
- A. Primary Zero Alignment Method.** The primary zero alignment shall be performed under clear path conditions. This may be accomplished if the process is not operating and the monitor pathlength is free of particulate matter or the monitor may be removed from its installation and set up under clear path conditions. The absence of particulate matter shall be demonstrated prior to conducting the test at the installed site. No adjustment to the monitor is allowed other than the establishment of the proper monitor pathlength and correct optical alignment of the monitor components. Record the monitor response to a clear path condition and to the monitor's simulated zero condition as percent opacity corrected to stack exit conditions as necessary. For monitors with automatic zero compensation, disconnect or disable the zero compensation mechanism or record the amount of correction applied to the monitor's simulated zero condition. The response difference in percent opacity to the clear path and simulated zero conditions shall be recorded as the zero alignment error. Adjust the monitor's simulated zero device to provide the same response as the clear path condition. Restore the COMS to its operating mode.
- B. Alternate Zero Alignment Method.** Monitors capable of allowing the installation of an external, removable zero-jig may use the equipment for an alternative zero alignment provided that the zero-jig setting is established for the monitor pathlength and recorded for the specific COMS by comparison of the COMS responses to the installed zero-jig and to the clear path condition. The zero-jig is shown to be capable of producing a consistent zero response when it is repeatedly (i.e., three consecutive installations and removals prior to conducting the final zero alignment check) installed on the COMS. The zero-jig setting shall be permanently set at the time of the initial COMS zeroing to the clear path zero value and protected when not in use to ensure that the setting equivalent to zero opacity does not change. The zero-jig setting shall be checked and recorded prior to initiating the zero alignment. Emission unit owners and operators that employ a zero-jig shall perform a primary zero alignment audit once every three years.
- C. Failure Criteria for Zero Alignment. The zero alignment is acceptable if the error at the simulated zero check is less or equal than 2% opacity prior to adjustment (i.e. if the zero alignment error is 0% the analyzer does not need servicing solely based on this test).**

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DEPARTMENT OF ENVIRONMENTAL CONSERVATION

**Standard Permit Condition III – Excess Emissions and
Permit Deviation Reports**

Permit Condition for Air Quality Permits

Adopted by Reference in 18 AAC 50.346

August 25, 2004

REVISED {*adoption date of the regulations*}

Standard Permit Condition III – Excess Emissions and Permit Deviation Reports

Stationary Source Categories This Condition Applies to: All stationary source types.

The department will use standard permit condition III in each construction or operating permit unless the department determines that **emission unit** or **stationary source** specific conditions more adequately meet the requirements of 18 AAC 50.

Permit Wording:

1. Excess Emissions and Permit Deviation Reports.

- 1.1 Except as provided in condition <insert cross reference to condition II - air pollution prohibited>, 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 commences 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, except as provided in conditions III.1.1c(ii) and III.1.1c(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 III.1.1c(i); and
 - (iii) for failure to monitor, as required in other applicable conditions of this permit.

- 1.2 When reporting excess emissions, the permittee must report using either the department's on-line form, which can be found at <http://www.dec.state.ak.us/air/ap/site.htm> or <https://myalaska.state.ak.us/deca/air/airtoolsweb/>, or, if the permittee prefers, the form contained in condition <insert cross reference to standard permit condition IV - notification form> of this permit. The permittee must provide all information called for by the form that is used.
- 1.3 When reporting a permit deviation, the permittee must report using the form contained in condition <insert cross reference to standard permit condition iv – notification form> of this permit. the permittee must provide all information called for by the form.
- 1.4 If requested by the department, the permittee shall provide a more detailed written report as requested to follow up an excess emissions report.

The following applies to this standard permit condition:

1. The permit will include condition III.1.1c(iii) only if the permit also contains another condition which has an **emission unit** specific schedule for reporting the failure to monitor emissions.
2. Construction permits will not include the phrase “and permit deviations” in condition III.1.1c, but where necessary will use **stationary source** specific conditions for reporting failure to test or monitor.

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>*.

Condition *<insert condition reference>*, 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.

In accordance with 40 CFR 71.6(a)(3)(iii)(C), a deviation is not always a violation. For a situation lasting more than 24 hours, which constitutes a deviation, each 24-hour period is considered a separate deviation. "Deviation" as defined in 40 CFR 71 means both "excess emission" and "permit deviation" as used in this permit, which includes:

1. a situation where emissions exceed an emission limitation or standard;
2. a situation where process or emissions control device parameter values indicate that an emission limitation or standard has not been met;
3. a situation in which observations or data collected demonstrate noncompliance with an emission limitation or standard or any work practice or operating condition required by the permit (including indicators of compliance revealed through parameter monitoring);
4. a situation in which any testing, monitoring, recordkeeping or reporting required by this permit is not performed or not performed as required;
5. a situation in which an exceedance or an excursion, as defined in 40 CFR Part 64, occurs; and,
6. failure to comply with a permit term that requires submittal of a report.

In accordance with 18 AAC 50.990(34) "excess emissions" means emissions of an air pollutant in excess of any applicable emission standard or limitation which is item 1 of the above definitions from 40 CFR 71. These definitions shall be considered in determining an "excess emissions" or "permit deviation" when reporting an occurrence using the ADEC notification form.

The reports themselves and the other monitoring records required under this permit provide monitoring of whether the Permittee has complied with the condition. Please note that there may be additional federally required excess emission reporting requirements.

<Insert section cross reference>, Notification Form

The department modified the notification form, deviating from standard permit condition IV, to more adequately meet the requirements of Chapter 50, Air Quality Control. The modification consisted of updating the current Department e-mail address in the report form used for submission of this form due to recent changes at the Department.

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DEPARTMENT OF ENVIRONMENTAL CONSERVATION

Standard Permit Condition IV – Notification Form

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

April 1, 2002

REVISED {*adoption date of the regulations*}

ADEC Notification Form

Excess Emissions and Permit Deviation Reporting
State of Alaska Department of Environmental Conservation
Division of Air Quality

Stationary Source (Facility) Name

Air Quality Permit Number

Company Name

When did you discover the Excess Emissions/Permit Deviation?

Date: / / Time: :

When did the event/deviation?

Begin: Date: / / Time: : (please use 24hr clock)

End: Date: / / Time: : (please use 24hr clock)

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

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

Excess Emissions Complete Section 1 and Certify

Deviation from Permit Conditions Complete Section 2 and Certify

Deviation from COBC, CO, or Settlement Agreement Complete Section 2 and Certify

Section 1. Excess Emissions

(a) Was the exceedance Intermittent or Continuous

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

Start Up/Shut Down

Natural Cause (weather/earthquake/flood)

Control Equipment Failure

Scheduled Maintenance/Equipment Adjustments

Bad fuel/coal/gas

Upset Condition

Other

(c) Description

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

(d) Emission Units Involved:

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

Unit ID	Emission Unit Name	Permit Condition Exceeded/Limit/Potential Exceedance

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

- | | | |
|--|---|---|
| <input type="checkbox"/> Opacity % | <input type="checkbox"/> Venting (gas/scf) | <input type="checkbox"/> Control Equipment Down |
| <input type="checkbox"/> Fugitive Emissions | <input type="checkbox"/> Emission Limit Exceeded | <input type="checkbox"/> Record Keeping Failure |
| <input type="checkbox"/> Marine Vessel Opacity | <input type="checkbox"/> Failure to monitor/report | <input type="checkbox"/> Flaring |
| <input type="checkbox"/> Other: | | |

(f) Unavoidable Emissions:

- | | | |
|---|------------------------------|-----------------------------|
| Do you intend to assert that these excess emissions were unavoidable? | <input type="checkbox"/> YES | <input type="checkbox"/> NO |
| Do you intend to assert the affirmative defense of 18 AAC 50.235? | <input type="checkbox"/> YES | <input type="checkbox"/> NO |

Certify Report (go to end of form)

Section 2. Permit Deviations

(a) Permit Deviation Type (check one only) (check boxes correspond with sections in permit)

- Source Specific
- Failure to monitor/report**
- General Source Test/Monitoring Requirements
- Recordkeeping/Reporting/Compliance Certification
- Standard Conditions Not Included in Permit
- Generally Applicable Requirements
- Reporting/Monitoring for Diesel Engines
- Insignificant Source
- Facility Wide
- Other Section: _____ (title of section and section # of your permit)

(b) Emission Units Involved:

Identify the source involved in the event, using the same identification number and name as in the permit. List the corresponding Permit condition and the deviation.

Unit ID	Emission Unit Name	Permit Condition /Potential Deviation

(c) **Description of Potential Deviation:**

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

(d) Corrective Actions:

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

Certification:

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

Printed Name: _____ Title _____ Date _____

Signature: _____ Phone number _____

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

To Submit this report:

1. Fax this form to: **907-451-2187**

Or

2. E-mail to: **DEC.AQ.airreports@alaska.gov**
if faxed or e-mailed,

Or

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

Or

4. Phone notifications: **907-451-5173.**
Phone notifications require written follow up report.

Or

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

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

if submitted online, report must be submitted by an authorized E-Signer for the Stationary Source.

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DEPARTMENT OF ENVIRONMENTAL CONSERVATION

**Standard Operating Permit Condition VII – Operating
Reports**

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

August 25, 2004

REVISED {*adoption date of the regulations*}

Standard Operating Permit Condition VII – Operating Reports

Stationary Source Categories This Condition Applies to: All stationary source types.

The department will use standard permit condition VII 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. reports are needed more frequently than twice a year;
2. activity of the **emission unit** is seasonal, and different semi-annual periods better fit the facility's operation.

Permit Wording:

1. **Operating Reports.** During the life of this permit¹, the permittee shall submit an original and two copies of an operating report by August 1 for the period January 1 to June 30 of the current year and by February 1 for the period July 1 to December 31 of the previous year.
 - 1.1 The operating report must include all information required to be in operating reports by other conditions of this permit. **The Permittee may, upon consultation with the Compliance Technician regarding software compatibility, provide electronic copies of data reports, emission source test reports, or other records under a cover letter certified in accordance with Departmental submission requirements.**
 - 1.2 If excess emissions or permit deviations that occurred during the reporting period are not reported under condition VII.1.1, 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 or dates of
 - (vi) such actions; or

¹ **“Life of this permit” is defined as the permit effective dates, including any periods of reporting obligations that extend beyond the permit effective dates. For example if a permit expires prior to the end of a calendar year, there is still a reporting obligation to provide operating reports for the periods when the permit was in effect.**

- b. when excess emissions or permit deviations have already been reported under condition *<insert standard permit condition concerning excess emissions and permit deviation reports number>*, the permittee may cite the date or dates of those reports.
- 1.3 The operating report must include a listing of emissions monitored under condition(s) *<insert applicable condition number(s) from this permit>* 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 of the emissions;
 - b. the equipment involved;
 - c. the permit condition affected; and
 - d. the monitoring result which triggered the additional monitoring.
- 1.4 Transition from expired to renewed permit. For the first period of this renewed operating permit, also provide the previous permit's facility operating report elements covering that partial period immediately preceding the effective date of this renewed permit.

The following applies to this standard permit condition:

1. The permit will include condition VII.1.3 only if there are monitoring requirements that could trigger additional monitoring or testing.

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>.

Condition <insert Condition reference>, 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. The reports themselves provide monitoring for compliance with this condition.

A modification of the Standard Permit Condition VII was added to provide clarification of transition periods between an expiring permit and a renewal permit to ensure that the permittee reports against the permit terms and conditions of the permit that was in effect during those partial date periods of the transition. No format is specified: the permittee may provide one report accounting for each permit term or condition and the effective permit at that time, or may chose to provide two reports – one accounting for reporting elements of permit terms and conditions from the end date of the previous operating report until the date of expiration of the old permit, and a second operating report accounting for reporting elements of terms and conditions in effect from the effective date of the renewal permit until the end of the reporting period.

This condition was further modified to allow the Permittee to submit one of the required two copies of the report electronically in lieu of paper. This change more adequately meets the requirements of 18 AAC 50 and agency needs provided the electronic version is compatible with ADEC software, as the department can more efficiently distribute the electronic copy to staff in other locations.

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 the regulations}

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) < > listed in <insert Table of Emission Units designation> to reduce visibility through the exhaust effluent by more than 20 percent averaged over any six consecutive minutes¹.

[18 AAC 50.040(j), 12/3/05; 18 AAC 50.326(j), 12/1/04; and 18 AAC 50.055(a)(1), 5/3/02]
[40 C.F.R. 71.6(a)(1), 7/1/04]

- 1.2 For EU ID(s) < >, monitor, record and report in accordance with Conditions 3 - 5.

- 1.3 For EU ID(s) < >, burn only gas as fuel. Monitoring for these emission unit(s) shall consist of a certification in each operating report under Condition <refer to *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) < >, as long as they do not exceed the limits in Condition(s) <refer to *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) < >, use only gas as primary fuel. Monitoring for these emission unit(s) shall consist of a certification in each operating report required in Condition <refer to *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) < >, monitor, record and report in accordance with Condition 6.

[18 AAC 50.040(j), 12/3/05 & 18 AAC 50.326(j) and 18 AAC 50.346(c), 10/1/04]
[40 C.F.R. 71.6(a)(3), 7/1/04]

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) < >, to reduce visibility by more than 20 percent averaged over any six consecutive minutes².

[18 AAC 50.040(j), 12/3/05 & 18 AAC 50.326(j), 12/1/04; and 18 AAC 50.050(a), 5/03/02]
[40 C.F.R. 71.6(a)(1), 7/1/04]

¹ 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.

² See footnote 1.

2.2 (Use Stationary Source-specific VE MR&R for incinerators.)

[18 AAC 50.040(j), 12/3/05 & 18 AAC 50.326(j)(4), 10/1/04]☑
[40 C.F.R. 71.6(a)(3) & (c)(6), 7/1/04]☑

Visible Emissions Monitoring, Recordkeeping and Reporting

Liquid Fuel-fired Sources (EU IDs < >)

3. **Visible Emissions Monitoring. The Permittee shall observe the exhaust of EU ID(s) <insert EU IDs> 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), 12/3/05, 18 AAC 50.326(j) 12/3/05 and 18 AAC 50.346(c), 10/1/04]
[40 C.F.R. 71.6(a)(3)(i), 7/1/04]

- 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. For EU ID(s) < >, 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. For any units replaced during the term of this permit, observe exhaust for 18 minutes within 30 days of startup.**
- b. **Monthly Method 9 Observations. After the first Method 9 observation, perform 18-minute observations at least once in each calendar month that a source operates.**
- c. **Semiannual Method 9 Observations. After observing emissions for three consecutive operating months under Condition 3.1a, 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.
- 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.

- 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 source 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 source 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 condition reference to Operating Reports condition> submitted under the renewed permit.**

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

[18 AAC 50.040(j), 12/3/05 & 50.326(j) and 18 AAC 50.346(c), 10/1/04]
[40 C.F.R. 71.6(a)(3)(ii), 7/1/04]

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) 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 <refer to Visible Emissions Section>, 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 *<insert Table of Emission Units designation>*, the ID of the source 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 source starts operation on the day of the observation, the startup time of the source;
 - 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), 12/3/05 and 18 AAC 50.326(j) & 50.346(c), 10/1/04]
[40 C.F.R. 71.6(a)(3)(iii), 7/1/04]

- 5.1 include in each stationary source operating report under Condition *<insert condition reference to Operating Reports condition>*:
- a. which visible-emissions plan of Condition 3 was used for each source; if more than one plan was used, give the time periods covered by each plan;
 - b. for each source under the Method 9 Plan,
 - (i) copies of the observation results (i.e. opacity observations) for each source 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 source 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 Condition reference to Excess Emissions and Permit Deviations condition>*:

- 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 the first six flare events³ occurring during the life of this permit⁴.

6.1 Monitor flare events using Method-9.

6.2 Record the following information for observed events:

- a. the flare(s) EU ID number;
- b. results of the Method-9 observations;
- c. reason(s) for flaring;
- d. date, beginning and ending time of event; and
- e. volume of gas flared.

³ 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.

⁴ Flare events monitored within 12-months prior to permit effective date may count towards the six-event total.

- 6.3 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 report required by Condition *<insert condition reference to Operating Reports condition>* 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 condition reference to Operating Reports condition>*.
- 6.5 Report under Condition *<inset Condition reference to Excess Emissions and Permit Deviations condition>* whenever the opacity standard in Condition 1.1 is exceeded.

[18 AAC 50.040(j), 12/3/05 and 18 AAC 50.326(j)(4), 10/1/04]

[40 C.F.R. 71.6(a)(3) & (c)(6), 7/1/04]

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) < > listed in Table *<insert reference to Table A: 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), 12/3/05 and 18 AAC 50.326(j), 12/1/04; and 18 AAC 50.055(b)(1), 1/18/97]

[40 C.F.R. 71.6(a)(1), 7/1/04]

- 7.1 For EU ID(s) < >, monitor, record and report in accordance with Conditions 9 - 11.
- 7.2 For EU ID(s) < >, burn only gas as fuel. Monitoring for these emission unit(s) shall consist of a certification in each operating report under Condition *<insert condition reference to Operating Reports condition>* that each of these emission unit(s) fired only gas. Report under Condition *<insert condition reference to Excess Emissions and Permit Deviations Reports condition>* if any fuel other than gas is burned.
- 7.3 For EU ID(s) < >, as long as they do not exceed the limits in Condition *<refer to Condition that states emission unit(s) operating limits>*, monitoring shall consist of an annual compliance certification under Condition *<insert condition reference to Annual Compliance Certification condition>* with the particulate matter standard.
- 7.4 For EU ID(s) < >, the Permittee must annually certify compliance under Condition *<insert condition reference to Annual Compliance Certification condition>* with the particulate matter standard.
- 7.5 For EU ID(s) < >, 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 condition reference to Operating Reports condition>* 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 condition reference to VE & PM MR&R for Dual Fuel-Fired Sources condition>*.

[18 AAC 50.040(j), 12/3/05 and 18 AAC 50.326(j) & 50.346(c), 10/1/04]

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

[18 AAC 50.040(j), 12/3/05 and 18 AAC 50.326(j), 12/1/04; and 18 AAC 50.050(b), 1/18/97]
 [40 C.F.R. 71.6(a)(1), 7/1/04]

Table A - Particulate Matter Standards for Incinerators

Incinerator Rated Capacity	Particulate Matter Standard
Less than 1000 lbs./hr	No Limits
EU ID(s) < >: 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) < >: 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) < >: 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), 12/3/05 & 18 AAC 50.326(j)(4), 10/1/04]
 [40 C.F.R. 71.6(a)(3) & 71.6(c)(6), 7/1/04]

PM Monitoring, Recordkeeping and Reporting

Liquid-Fired Sources (EU IDs < >)

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 sources>, to determine the concentration of particulate matter (PM) in the exhaust of a source in accordance with Condition 9.

[18 AAC 50.040(j), 12/3/05 and 18 AAC 50.326(j) & 50.346(c), 10/1/04]
 [40 C.F.R. 71.6(a)(3)(i), 7/1/04]

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 condition reference to Operating Reports condition>*.

[18 AAC 50.040(j), 12/3/05 and 18 AAC 50.326(j) & 50.346(c), 10/1/04]
[40 C.F.R. 71.6(a)(3)(ii), 7/1/04]

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

[18 AAC 50.040(j), 12/3/05 and 18 AAC 50.326(j) & 50.346(c), 10/1/04]
[40 C.F.R. 71.6(a)(3)(iii), 7/1/04]

- 11.1 report under Condition *<insert condition reference to 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 *<refer to 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) < > to determine the concentration of PM in the exhaust of EU ID(s) < > as follows:

[18 AAC 50.040(j), 12/3/05 & 18 AAC 50.326(j)(4), 10/1/04]
[40 C.F.R. 71.6(a)(3)(i) & 71.6(c)(6), 7/1/04]

- 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), 12/3/05 and 18 AAC 50.326(j)(4), 10/1/04]
[40 C.F.R. 71.6(a)(3)(ii) & 71.6(c)(6), 7/1/04]

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

[18 AAC 50.040(j), 12/3/05 and 18 AAC 50.326(j)(4), 10/1/04]
[40 C.F.R. 71.6(a)(3)(iii) & 71.6(c)(6), 7/1/04]

- 14.1 In each stationary source operating report required by Condition <refer to 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 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 condition reference to 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) *< >* 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 condition reference to Annual Compliance Certification condition number>* with Conditions 1.1 and 7.
- 15.2 EU ID(s) *< >* are subject to the liquid fuel monitoring requirements described in Conditions 3 and 9 if operations exceed 400 hours per calendar year per source on a back-up liquid fuel.
- 15.3 The Permittee must notify the department and begin monitoring the affected source 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 condition reference to Excess Emissions and Permit Deviations condition number>* if the Permittee fails to comply with Condition 15.3.

[18 AAC 50.040(j), 12/3/05 and 18 AAC 50.326(j)(4), 10/1/04]
[40 C.F.R. 71.6(a)(3) & 71.6(c)(6), 7/1/04]

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

Applicability: This regulation applies to operation of all fuel-burning equipment in Alaska. EU ID(s) *< >* are fuel-burning equipment.

Factual basis: Conditions 1 and 2 require the Permittee to comply with the federal and the state visible emission standards applicable to fuel-burning equipment and incinerators. The Permittee shall not cause or allow the equipment to violate these standards.

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) < >, 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) < > no visible emissions monitoring is required because these sources are insignificant sources based on actual emissions and have permit Condition(s) < > 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 <insert *Annual Compliance Certificate Condition*> with the opacity standard.

Flares:

Monitoring for flares (EU ID(s) < >) 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

Applicability: 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

Applicability: The PM standard applies to operation of all fuel-burning equipment in Alaska. EU ID(s) < > 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) < >, 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) < >, no monitoring is required because these sources are insignificant sources based on actual emissions. EU ID(s) < > 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

Applicability: 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.

DEPARTMENT OF ENVIRONMENTAL CONSERVATION

Standard Operating Permit Condition XIII – Coal Fired Boilers

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

April 1, 2002

REVISED {*adoption date of the regulations*}

Standard Operating Permit Condition XIII – Coal Fired Boilers

Stationary Source [OR FACILITY] Categories This Condition Applies to: Coal fired boilers in operation before July 1, 1972.

The department will use standard permit condition XIII in an 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. the permittee demonstrates that Continuous Opacity Monitoring System (COMS) operation and audit procedures that are specific to the COMS unit being used and that differ from this standard permit condition XIII are more appropriate.

Permit Wording:

1. **Coal Fired Boiler Visible Emissions Monitoring – Procedures for Operation of a COMS.** The following procedure applies to monitoring visible emissions using a Continuous Opacity Monitoring System (COMS):
 - 1.1 the COMS must meet the performance specifications in 40 C.F.R. 60, Appendix B, Performance Specification 1, adopted by reference in 18 AAC 50.040(a);
 - 1.2 operate and maintain the COMS in accordance with the manufacturer's written requirements and recommendations;
 - 1.3 except during COMS breakdowns, repairs, calibration checks, and zero and upscale adjustments, complete one cycle of sampling and analyzing for each successive 10-second period of **emission unit** operation; from this data, calculate and record the average opacity for each successive one-minute period;
 - 1.4 at least once daily, conduct a zero and upscale check in accordance with 40 C.F.R. 60.13(d), adopted by reference in 18 AAC 50.040(a), and a written procedure; adjust whenever the zero or upscale drift exceeds four percent opacity in a 24-hour period;
 - 1.5 conduct performance audits as follows:
 - a. for a COMS that was new, relocated, replaced, or substantially refurbished on or after April 9, 2001, perform an audit that includes the following elements as described in the department's *Performance Audits for COMS*, adopted by reference in 18 AAC 50.030, at least once in each 12 months:
 - (i) optical alignment;

- (ii) zero and upscale response assessment;
 - (iii) zero compensation assessment;
 - (iv) calibration error check; and
 - (v) zero alignment assessment;
- b. for a COMS that was new, relocated, replaced, or substantially refurbished before April 9, 2001, perform the same audits required under condition XIII.1.5a, except that condition XIII.1.5a(i) - XIII.1.5a(iv) must be performed at least quarterly; this frequency may be reduced if
- (i) the permittee demonstrates, by applying measurable criteria to the results of quarterly audits, that quarterly audits are not necessary; and
 - (ii) the department gives written approval for the reduction in frequency.

2. Coal Fired Boiler Particulate Matter (PM). The permittee shall not cause or allow particulate matter (PM) emitted from *<identify emission units>* to exceed 0.1 grains per cubic foot of exhaust gas corrected to standard conditions and averaged over three hours. (18 AAC 50.055(b))

2.1 Coal Fired Boiler PM Monitoring and Recordkeeping. The permittee shall do the following.

- a. at least once every 12 months, for each boiler that has operated 90 days or more during that period, inspect the exhaust duct work and the internal components of the dust collector for the presence of leaks; prior to restarting the boiler, repair all leaks in the exhaust ductwork and all leaks that would allow dirty gas to pass into the clean gas side of the dust collector;
- b. conduct source tests for particulate matter as follows:
 - (i) conduct the tests and report the results in accordance with conditions *<insert conditions' numbers that address the requirements of 18 AAC 50.220 and that reiterate 18 AAC 50.345(l) - (o)>*; for tests required under condition XIII.2.1(iii), submit the test plan required by *<insert condition number that reiterates 18 AAC 50.345(m)>* ~~before 80% of the allowable operating hours before the next test have elapsed~~ **and at least 60 days before the deadline for the next test under condition XIII.2.1(iii)**;
 - (ii) conduct an initial test on each boiler within 8760 operating hours or two calendar years, whichever is sooner, after the issue date of the initial operating permit;

- (iii) conduct additional tests on each boiler according to the following schedule where each test means a three hour average consistent with 18 AAC 50.220(f):
 - (a) if the most recent source test exceeded 90 percent of the emission standard, conduct a source test within 8760 operating hours of the previous test;
 - (b) if the most recent source test exceeded 75 percent of the emission standard, conduct a source test within 17520 operating hours of the previous test; and
 - (c) within five years of the previous source test, conduct a test of each boiler operated during that time;
- (iv) for any boiler with a steam production limit that the operator wishes to change, the operator may operate in excess of the steam limit to perform source tests on which a new limit would be based; the operator may use a new limit based on the source testing if
 - (a) the permittee submits a source test plan and the department approves the plan in writing;
 - (b) the permittee conducts source testing according to the source test plan and consistent with condition *<insert conditions' numbers that address the requirements of 18 AAC 50.220>*;
 - (c) the permittee submits the results to the department;
 - (d) the test results show compliance at the requested new steam production rate; and
 - (e) the department concurs with the new limit in writing, after finding that
 - i) the test results will be representative of normal operation; and
 - ii) the new limit does not cause the facility to be subject to permitting under 18 AAC 50.300(h);
- (v) during each test, measure and record visible emissions and steam production rates; submit the records with the source test report; determine visible emissions consistent with monitoring methods of condition *<insert applicable condition number from this permit>* for the duration of each one hour run;

- c. measure and record steam production as follows:
 - (i) operate and maintain a device to measure and record steam production in accordance with the manufacturer's written requirements and recommendations;
 - (ii) except during breakdowns, repairs, calibration checks, and zero and span adjustments of the device, complete at least one cycle of sampling and analyzing for each successive 15-minute period of boiler operation; from this data, calculate and record the average steam production rate for successive one-hour periods; maintain this data at the facility and make it available to the department upon request;
 - (iii) within one year after the effective date of this permit and at such times as the department may require, determine the relative accuracy of each monitoring device required by condition XIII.2.1c(i);
 - (iv) keep sufficient written records to show compliance with the requirements of this condition XIII.2.1; in addition, keep records of the date and time identifying each period during which a device required by this permit is inoperative, except for zero and span checks, and records of the nature of device repairs and adjustments; upon request of the department, submit copies of the records.

2.2 Coal Fired Boiler PM Reporting. The permittee shall

- a. submit a report in accordance with *<insert standard permit condition number concerning excess emissions and permit deviation reports>* whenever any of the following situations occur:
 - (i) when steam production exceeds a permit limit;
 - (ii) when the results of a source test exceed the particulate matter emission limit;
 - (iii) if a steam production monitoring device malfunctions or becomes inoperable for four or more consecutive hours; in the report, identify the boiler, the cause of failure, and the anticipated time required to repair the device;
- b. include in each operating report under condition *<insert standard permit condition number concerning operating reports>*:
 - (i) the results of each particulate matter source test;

- (ii) for any boiler with a steam production limit, the limit and averaging period, the highest steam production rate for the period covered by the report (averaged over the same averaging period as the limit), and identification of any periods exceeding the limit; and
- (iii) the results of any relative accuracy determination of steam monitoring equipment.

3. Sulfur Compound Emissions. The permittee shall not cause or allow sulfur compound emissions, expressed as sulfur dioxide, from emission units *<identify coal fired boilers>* to exceed 500 parts per million averaged over a period of three hours. (18 AAC 50.055(c))

3.1 CFB Sulfur Compound Emissions Monitoring. The following applies to sulfur compound emission monitoring:

- a. upon receipt of each shipment of fuel at the stationary source, the permittee shall
 - (i) obtain a signed statement from the supplier with the following information:
 - (a) the percent sulfur by weight of the coal;
 - (b) the method of analysis; and
 - (c) a statement that the analysis was representative of the coal shipped;
 - (ii) if valid representative results are not available from the supplier, analyze a representative sample of the fuel to determine the sulfur content using ASTM D2492-90 for coal, adopted by reference in 18 AAC 50.035(c), or another method approved in writing by the department for coal or other fuels; and
 - (iii) if the coal contains more than 0.4 percent sulfur by weight, calculate the three hour exhaust concentration expected to result from combusting each shipment of fuel using the following equation:

$$\text{SO}_2\text{-concentration, PPM} = 1.00 \times 10^6 \times \text{mol-SO}_2 / (\text{mol-SO}_2 + \text{mol-CO}_2 + \text{mol-O}_2 + \text{mol-N}_2)$$

Where:

$$\text{mol-SO}_2 = [\text{wt\% Sulfur}_{\text{fuel}}, \%] / 32.06$$

$$\text{mol-CO}_2 = [\text{wt\% Carbon}_{\text{fuel}}, \%] / 12.01$$

$$\text{mol-O}_2 = \text{MF} \times (([\text{wt}\% \text{Nitrogen}_{\text{fuel}}, \%] / 28.01) + (4.76 \times \text{mol-SO}_2) + (4.76 \times \text{mol-CO}_2) + (1.88 \times \text{mol-H}_2\text{O}) - (3.76 \times ([\text{wt}\% \text{Oxygen}_{\text{fuel}}, \%] / 32.00)))$$

$$\text{MF} = ([\text{vol}\% \text{O}_{2, \text{exhaust}}, \%] / (100\% - 4.76 \times [\text{vol}\% \text{O}_{2, \text{exhaust}}, \%]))$$

$$\text{mol-H}_2\text{O} = [\text{wt}\% \text{Hydrogen}_{\text{fuel}}, \%] / 2.016$$

$$\text{mol-N}_2 = ([\text{wt}\% \text{Nitrogen}_{\text{fuel}}, \%] / 28.01) + (3.76 \times \text{mol-SO}_2) + (3.76 \times \text{mol-CO}_2) + (1.88 \times \text{mol-H}_2\text{O}) + (3.76 \times \text{mol-O}_2) - ([\text{wt}\% \text{Oxygen}_{\text{fuel}}, \%] / 8.51);$$

And Where:

The fuel weight percent (wt%) of carbon, nitrogen, oxygen, and hydrogen is obtained from the most recent analysis required by condition XIII.3.1b;

The volume percent of oxygen in the exhaust (vol% O_{2, exhaust}) is obtained from oxygen meters **on a three hour average** or from the most recent ORSAT analysis at the same boiler load used in the calculation; and

The fuel weight percent (wt%) of sulfur is obtained pursuant to condition XIII.3.1a(i) or XIII.3.1a(ii);

- b. at least once each year, and whenever a shipment of coal contains more than 0.4 percent sulfur, obtain a representative sample of each fuel that is burned using the applicable procedures in 40 C.F.R. 60, Appendix A-7, Method 19, Section 12.5.2.1, adopted by reference in 18 AAC 50.040(a); conduct an ultimate analysis of the representative sample using ASTM D3176-89 (1997), adopted by reference in 18 AAC 50.035(c), or another method approved in writing by the department to determine the weight percents, dry basis, of carbon, nitrogen, oxygen, and hydrogen;
- c. conduct source tests on at least one coal fired boiler at the stationary source to determine sulfur compound emissions while burning each shipment of fuel if the calculations of condition XIII.3.1a(iii) show that the exhaust SO₂ concentration would exceed 500 ppm.

3.2 **CFB Sulfur Compound Emissions Record Keeping.** The permittee shall keep records of the sulfur contents of each shipment of fuel, each calculated SO₂ concentration averaged over three-hours, and any test results and calculations determined under condition XIII.3.1.

3.3 **CFB Sulfur Compound Emissions Reporting.** The permittee shall

- a. submit a report in accordance with condition *<insert standard permit condition number concerning excess emissions and permit deviation reports>* whenever
 - (i) a three-hour exhaust concentration calculated pursuant to condition XIII.3.1a(ii) is greater than 500 ppm; or
 - (ii) a source test pursuant to condition XIII.3.1c has not shown compliance;
- b. include in each operating report under condition *<insert standard permit condition number concerning operating reports>* a summary that includes
 - (i) sulfur contents of each shipment of fuel;
 - (ii) each calculated SO₂ concentration averaged over three hours; and
 - (iii) any test results and calculations required under condition XIII.3.1.

The following apply to this standard permit condition:

1. **Opacity.** The standard conditions for visible emissions apply only to technical aspects of operating the COMS, including audits. The permit will state the applicable opacity limit, and **emission unit** specific conditions will be used for all other aspects of monitoring, record keeping, and reporting for the opacity standards of 18 AAC 50.055(a)(1) and (a)(9).
2. Conditions XIII.2.1b(iv) and XIII.2.1c and the reference to steam production rates in condition XIII.2.1b(v) for each coal fired boiler will be used unless the department finds that
 - the boiler does not have a steam production limit; and
 - it is not feasible to operate the boiler at a steam production rate sufficiently higher than the rated steam production capacity that the particulate matter standard or opacity standard could be violated.
3. The fuel sulfur threshold in conditions XIII.3.1a(ii) and XIII.0 were calculated for the general case based on six percent excess air. That threshold will be used unless the applicant shows that the boiler must use a specific higher amount of excess air.
4. If fuel is burned that has a substantially higher ash content than normal run of mine coal, the allowable fuel sulfur must decrease proportionally with the portion of the coal that is combustible in order to assure compliance with the 500 ppm SO₂ standard. The permit should require the calculation under condition XIII.3.1a(ii) if it is foreseeable that the facility will burn fuel with an ash content greater than 15 percent and a sulfur content between 0.25 percent and 0.4 percent.

**DEPARTMENT OF ENVIRONMENTAL
CONSERVATION**

**Standard Operating Permit Condition XIV – Document
Submittals and Electronic Copies**

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

{adoption date of the regulations}

Standard Operating Permit Condition XIV – Document Submittals and Electronic Copies

Emission Unit or Stationary Source Categories This Condition Applies to:

- Condition XIV.1 applies to all sources and Permittee's subject to 18 AAC 50.326(a)-(c).

The department will use Standard Permit Condition XIV 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.

Permit Wording:

<Insert Section Number here> - Permit Changes and Renewal

1. The Permittee shall comply with the following requirements for submitting application information to the US Environmental Protection Agency (EPA):
 - 1.1 The permittee shall provide a copy of each application for modification or renewal of this permit, including any compliance plan, or application addenda, at the time the application or addendum is submitted to the department;
 - 1.2 The information shall be submitted to the same address as in Condition <insert reference to Annual Compliance Certification condition subparagraph with EPA's address>;
 - 1.3 To the extent practicable, the permittee shall provide to EPA applications in portable document format (pdf); MS Word format (.doc); or other computer-readable format compatible with EPA's national database management system; and
 - 1.4 The permittee shall maintain records as necessary to demonstrate compliance with this condition.

[18 AAC 50.040(j)(7), 18 AAC 50.326(b), 12/1/04]
[40 CFR 70.10(d)(1)), 7/1/04]

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 here>*.

Condition *<insert condition cross-reference>*, Permit Applications and Submittals

Applicability: Applies because the permittee may need to submit permit applications and related correspondence.

Factual Basis: Condition XIV directs the applicant to send copies of all application materials required to be submitted to the Department directly to the EPA, in electronic format if practicable. This condition shifts the burden of compliance from the Department to ensure that copies of application materials are submitted to EPA by transferring that responsibility to the Permittee.

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