NEBRASKA ADMINISTRATIVE CODE

Title 129 – Department of Environmental Quality

Chapter 34 – EMISSION SOURCES; TESTING; MONITORING

001 The Department may order any person responsible for the operation of an emission source to make or have tests made to determine the rate of contaminant emissions from the source whenever it has reason to believe on the basis of estimates of potential contaminant emissions rates from the source and due consideration of probable efficiency of any existing control device, or visible emission determinations made by an official observer, that existing emissions exceed the limitations required in these control regulations. Such tests may also be required pursuant to verifying that any newly installed control device meets performance specifications. Should the Department determine that the test did not represent normal operating conditions or emissions, additional tests may be required.

002 Required tests shall be conducted in accordance with the following test methods and procedures, as applicable:

002.01 40 CFR Part 51, Appendix M, effective July 1, 2002

002.02 40 CFR Part 60, Appendices A,B,C,F, effective July 12, 2002

002.03 40 CFR Part 61, Appendix B, effective July 1, 2002

002.04 40 CFR Part 63, Appendix A, effective July 1, 2002

002.05 40 CFR Part 266, Appendix IX, effective July 1, 2002

002.06 Test Methods for Evaluating Solid Waste, Physical/Chemical Methods, EPA Publication SW-846 (3rd Edition) (November 1986) and its ~~Revisions~~ Updates I , II, IIA, IIB, ~~and~~ III, IIIA, IIIB, IVA and IVB~~effective June 13, 1997~~.

002.07 Such tests shall be conducted by reputable, qualified individuals. A certified written copy of the test results signed by the person conducting the test shall be provided to the Department within ~~45~~60 days of completion of the test unless a different period is specified in the underlying requirements of an applicable Federal Rule.

003 The owner or operator of a source shall provide the Department 30 days notice prior to testing to afford the Department an opportunity to have an observer present. The Department may, in writing, approve a notice of less than 30 days. If the testing is pursuant to an underlying requirement contained in a federal rule, the notice provisions of the underlying requirement apply.

004 The Department may conduct tests of emissions of contaminants from any stationary source.

004.01 Upon written request from the Department, the person responsible for the source to be tested shall cooperate with the Department in providing all necessary test ports in stacks or ducts and such other safe and proper facilities, exclusive of instruments and sensing devices, as may be reasonably required to conduct the test with due regard being given to expenditures and possible disruption of normal operations of the source.

004.02 A report concerning the findings of such tests shall be furnished to the person responsible for the source upon request.

005 A continuous monitoring system for the measurement of opacity shall be installed and placed in operation by the owner or operator of any fossil fuel-fired steam generator with greater than 250 million BTUs per hour heat input. Exemptions from this requirement will be made if gaseous fuel and oil is the only fuel burned and the source has never been out of compliance with Chapter 20 of these regulations. Installation, calibration, operation and reporting shall be in accordance with the procedures specified in 40 CFR Part 60.

006 The Director may require the owner or operator of any other emission source which is subject to the provisions of these regulations to install, use and maintain such monitoring equipment as is required to demonstrate continuing compliance with any applicable emissions limitations, and to maintain records and make reports regarding such measured emissions to the Department in a manner and on a schedule to be determined by the Director.

007 When a new or modified stationary source becomes operational, the owner or operator will conduct performance tests, if required, within 60 days after reaching maximum capacity but not later than 180 days after the start-up of operations. Failure to meet established performance standards will result in withdrawal of the provisional approval granted to operate the new or modified stationary source. Final approval and issuance of an operating permit will be withheld for operation of the affected facility until such time as the owner or operator has corrected the deficiencies determined by the performance tests. Upon satisfactory accomplishment of a valid series of performance

tests, approval for operation of the new or modified stationary source will be granted through issuance of an operating permit in accordance with Chapter 5.

008 Notwithstanding any other provisions of this Title, the following methods may be used to determine compliance with applicable requirements:

008.01 A monitoring method approved for the source and incorporated in an operating permit pursuant to Chapter 8;

008.02 Any compliance test method specified in the State Implementation Plan;

008.03 Any test or monitoring method approved for the source in a permit issued pursuant to Chapters 17, 19, or 27;

008.04 Any test or monitoring method provided for in this Title; or

~~008.04~~008.05 Any other test, monitoring, or information-gathering method that produces information comparable to that produced by any method described in 008.01 through 008.04.

009 Predictive Emissions Monitoring System (PEMS) requirements. Where allowed by the Department, the owner or operator of any PEMS used to meet a pollutant monitoring requirement must comply with the following:

009.01 The PEMS must predict the pollutant emissions in the units of the applicable emission limitations.

009.02 Monitor diluent, either O2 or CO2 when applicable:

009.02A Using a CEMS:

009.02A1 In accordance with 40 CFR Part 60 Appendix B, Performance Specification 3 for diluent; or

009.02A2 With a similar alternative method approved by the Director and EPA; or

009.02B Using a PEMS with a method approved by the Director and EPA.

009.03 Any PEMS shall meet the requirements of 40 CFR Part 75, Subpart E except as provided in section 009.05.

009.04 The owner or operator of any PEMS installed subsequent to adoption of Chapter 34, section 009 shall perform the following initial certification procedures:

009.04A Conduct initial Relative Accuracy Test Audit (RATA) at low, medium, and high operating levels using 40 CFR Part 60, Appendix B:

009.04A1 Performance Specification 2, subsection 8.4 (pertaining to NOx) in terms of the applicable standard (in ppmv, lb/MMBtu, or g/hp-hr). except the relative accuracy shall be 10%, or within 2 ppm absolute difference;

009.04A2 Performance Specification 3, subsections 8 and 13.2 (pertaining to $O_2$ or $CO_2$); and

009.04A3 Performance Specification 4, subsections 8 and 13.2 (pertaining to CO), for owners or operators electing to use a CO PEMS; and

009.04B Conduct a t-test, an F-test, and a correlation analysis using 40 CFR Part 75, Appendix A, section 7.6 and section 75.41(c)(1) and (2) at low, medium, and high load levels.

009.04B1 Calculations shall be based on a minimum of 27 successive emission data points at each tested level which are at least seven-minute averages;

009.04B2 The t-test and the correlation analysis shall be performed using all data collected at the three tested levels;

009.04B3 The correlation analysis may be waived following review of the waiver request submittal if:

(a) The process design is such that it is technically impossible to vary the process to result in a concentration change sufficient to allow a successful correlation analysis statistical test. Any waiver request must also be accompanied with documentation of the reference method measured concentration. The waiver is to be based on the measured value at the time of the waiver. Should a subsequent RATA effort identify a change in the reference method measured value by more than 30%, the statistical test must be repeated at the next RATA effort to verify the successful compliance with the correlation analysis statistical test requirement; or

(b) The data for a measured compound (e.g., NOx, $O_2$) are determined to be autocorrelated according to the procedures of 40 CFR §75.41(b)(2). A complete analysis of autocorrelation with support information shall be submitted with the request for waiver. The statistical test shall be repeated at the next RATA effort to verify the successful compliance with the correlation analysis statistical test requirement.

009.04B4 Allowable Test Adjustments

(a) For either NOx or CO and for the purpose of conducting an f-test, if the standard deviation of the EPA reference method is less than either 3% of the span or five parts per million (ppm), use an EPA reference method standard deviation of either five ppm or 3% of span.

(b) For the diluent $CO_2$ or $O_2$, and for the purpose of conducting an f-test, if the standard deviation of the reference method is less than 3% of span, use an EPA reference method standard deviation of 3% of span.

(c) For either NOx or CO and at any one test level, if the mean value of the EPA reference method is less than either ten ppm or 5% of the standard, all statistical tests are waived for that emission parameter at that specific test level.

(d) For the diluent $O_2$ or $CO_2$ and at any one test level, if the mean value of the reference method is less than 3% of span, all statistical tests are waived for that diluent parameter at that specific test level.

009.04C All requests for waivers shall be submitted to the Department for review and approval. The Director shall approve or deny each waiver request;

009.04D The owner or operator shall, for each alternative fuel fired in a unit, certify the PEMS in accordance with sections 009.04A and 009.04B unless the alternative fuel effects on NOx, CO, and $O_2$ (or $CO_2$) emissions were addressed in the model training process.

009.04E The PEMS shall be subject to the approval of the Director.

009.05 The owner or operator may vary from sections 009.03 or 009.04 if the owner or operator:

009.05A Demonstrates to the satisfaction of the Director that the alternative is substantially equivalent to the requirements; or

009.05B Demonstrates to the satisfaction of the Director that the requirement is not applicable.

010 Applying for Approval of a PEMs system

010.01 Owners or operators shall submit the following information in the

application for certification or recertification of a predictive emissions monitoring system. Approval to use PEMS will be limited to the specific unit and fuel type for which certification testing was conducted. Any future change in the type or composition of the fuel, or combustion characteristics of the boiler, will require that the PEMS be recertified, unless the PEMS was initially constructed to account for different fuel types and/or compositions. In this case, fuel switching would be permitted without recertification. Owners or operators may attempt to justify that a slight change in fuel composition does not affect emissions and the PEMS does not need be recertified. The approval of such justification will be determined by the Director.

010.02 Owners or operators shall submit the following:

010.02A Source identification information including unit description, heat rate, and fuel type.

010.02B A general description of the software and hardware components of the PEMS including manufacturer, type of computer, name(s) of software product(s), and monitoring technique (e.g. method of emission correlation). Manufacturer literature and other similar information shall also be submitted, as appropriate.

010.02C A detailed description of the predictive emissions monitoring system. Identify all operational parameters or ambient conditions which are determined to have an effect on the predicted emissions. If the PEMS is developed on the basis of physical principles, identify any specific physical assumptions or mathematical manipulations made that justify suitability of the model. If the PEMS is developed on the basis of linear or nonlinear regression analysis, submit the paired raw data used in developing or training the model and specifically identify the tested operating range for every input parameter and the number of data points used in the development of the model.

010.02D A detailed description of the hardware CEMS or the reference method used during the testing period.

010.02E Data collection procedures including location of the sampling probe and methods to ensure accurate representativeness of emissions being measured.

010.02F A detailed description of all PEMS operation, maintenance, and quality assurance and control procedures to be implemented.

010.02G Identification of all sensors pertaining to the PEMS and a detailed description of the sensor validation procedure and calibration frequency for each sensor.

010.02H Description of monitor reliability, accessibility, and timeliness analysis from section 011.

010.02I A description of the method used to calculate heat input, if applicable.

010.02J Data, calculations, and results of the RATA test and the statistical tests performed at all three loads and fuel types as listed under 40 CFR 75.48(a) (3).

010.02K Data plots as specified in 40 CFR 75.41(a) (9) and 75.41(c) (2) (i).

010.02L A summary of all results and calculations which demonstrates that PEMS is equivalent in performance to that of the certified hardware CEMS or EPA reference method.

011 Quality Assurance Procedure for PEMS. The owner or operator must develop and implement a quality assurance and quality control (QA/QC) manual for the PEMS and its components. The manual should include daily, quarterly, and semiannual or annual assessment procedures or operations to ensure continuous and reliable performance of the PEMS. The QA/QC manual should also include a ready and detailed specific corrective action plan that can be executed at times when the monitoring systems are inoperative. The QA/QC manual shall be placed in a readily accessible location on the plant site. Owners or operators must assign the responsibility of implementing the QA/QC manual to designated employees and must ensure at all times that these employees have the technical and practical training needed to execute this plan.

011.01 Daily Assessment. Identify any specific steps, measures, or maintenance plans that can be taken to ensure proper functioning of the monitoring systems. Develop a plan to detect any thermocouple, flow monitoring, and sensor failures. If the PEMS is developed to operate in a specific operating range, develop a plan that will ensure continuous operation within the specified operating range. It is the responsibility of the owner or operator to make sure that the model is trained over a wide range of operating parameters. Operation outside any of the operating ranges will be considered monitor downtime.

011.02 Quarterly Assessment. The owner or operator must develop and implement a plan that will ensure proper accuracy and calibration of all operational parameters that affect emissions and serve as input to the predictive monitoring system. All sensors must be calibrated as often as needed but never to exceed the time recommended by the manufacturers, for the specific applications these sensors are being used.

011.03 Semiannual or Annual Assessment. Following initial RATA, conduct RATA semiannually, pursuant to 009.04A, at normal load operations, for each unit. If the relative accuracy for the initial or most recent audit for the $NO_x$, CO, $CO_2$, (or

$O_2$) monitors is 7.5 percent or less, subsequent RATA may be performed on an annual basis.

012 PEMS Partial Certification. In certain cases, the owner or operator may not be able to adjust all of the parameters of the model over the entire desired range of operation at one time. In this case, the owner or operator may certify the PEMS in a restricted range of operation in accordance with the PEMS certification procedure.

012.01 If, at a later date, the owner or operator wishes to operate outside the demonstrated range of the certified PEMS, the owner or operator may extend the demonstrated range by certifying at a new range within 60 days of cumulative operation of the parameter at that range.

013 Monitor downtime periods for PEMS include the following:

013.01 Operating out of range of any operational parameters that affect NOx.

013.02 One or more sensor failures

013.03 Uncertified fuel switching or fuel composition changes unless approved.

013.04 Failing the RATA or any applicable statistical tests. If a PEMS fails the RATA or statistical tests, downtime is the time corresponding to the completion of the sampling that results in the failure, until the time corresponding to the completion of the subsequent successful sampling.

013.05 Failure of any quality assurance procedure specified in accordance with 011.

013.06 Failure to complete a minimum of one cycle of operation (sampling, analyzing and data recording) for each successive 15 minute period of emission unit operation.

014 PEMS Adjustments and Tuning. Adjustments and tuning are permissible provided that the date, reasons, and details of the PEMS adjustments are documented, submitted to the Department and the documentation placed in an accessible location on the plant site, suitable for inspection. The Department must be able to identify, at any time, that the PEMS for any unit has been inspected, the occurrence of the last PEMS adjustment, and the last RATA performed for that unit. The PEMS must be retrained on an augmented set of data which includes the set of data used for training the model prior to adjustment and the newly collected set of data needed for adjustment of the model. When PEMS retraining is performed within the demonstrated range of certification, no RATA testing is required. No tampering with the PEMS is allowed during periods when no PEMS adjustments or tuning are being performed.

015 Notification, recordkeeping, and reporting. Owners or operators using predictive

emissions monitoring systems shall maintain for each unit a file of all measurements, data, reports, and other information in a form suitable for inspection for at least five years from the date of each record.

015.01 Notification.

015.01A The owner or operator shall submit written notification to the Department in accordance with Chapter 34 of the date of any predictive emissions monitoring system (PEMS) relative accuracy test audit (RATA).

015.01B The owner or operator shall submit to the Department a copy of results of any PEMS RATA and statistical testing conducted in accordance with section 011.03.

015.02 Recordkeeping. The owner or operator shall maintain written or electronic records of the data specified below. Such records shall be kept for a period of at least five years and shall be made available upon request by authorized representatives of the Department or EPA. The PEMs monitoring records shall include:

015.02A Hourly emissions in units of the standard and fuel usage (or stack exhaust flow)

015.02B Records to verify minimum data collection requirement of one cycle of operation (sampling, analyzing and data recording) for each successive 15 minute period of emission unit operation.

015.02C Pounds per million British thermal units (lb/MMBtu) heat input;

015.02D Detailed records of any daily, quarterly, and semiannual or annual quality assurance programs or monitoring plans.

015.02E Compliance with the applicable recordkeeping requirements of 40 CFR 75.57 (d) and (e).

015.02F Compliance with the certification, quality assurance and quality control record provisions of 40 CFR 75.59, (a)(5),(6), and (7).

015.03 Reporting. The owner or operator of a unit approved to utilize a PEMS for demonstrating continuous compliance, shall report in writing to the Department on a quarterly basis the monitoring system performance and any exceedance of the applicable emission standard. All reports shall be postmarked or received by the 30th day following the end of each calendar quarter. Written reports shall include the following information:

015.03A The magnitude of excess emissions computed in accordance with

40 CFR 60.13(h), any conversion factors used, the date and time of commencement and completion of each time period of excess emissions, and the unit operating time during the reporting period;

015.03B Specific identification of each period of excess emissions that occurs during start-ups, shutdowns, and malfunctions of the affected unit, the nature and cause of any malfunction (if known), and the corrective action taken or preventative measures adopted;

015.03C The date and time identifying each period during which the continuous monitoring system was inoperative or down as described in section 013 and the nature of the system repairs or adjustments;

015.03D The results of any quality assurance assessments conducted during the quarter;

015.03E When no excess emissions have occurred or the continuous monitoring system has not been inoperative, repaired, or adjusted, such information shall be stated in the report.

Enabling Legislation: Neb. Rev. Stat. §§81-1504(1)(2)(11); 81-1505(12)(16)

Legal Citation: Title 129, Chapter 35, Nebraska Department of Environmental Quality