

NORTH DAKOTA ADMINISTRATIVE CODE

VOLUME 1

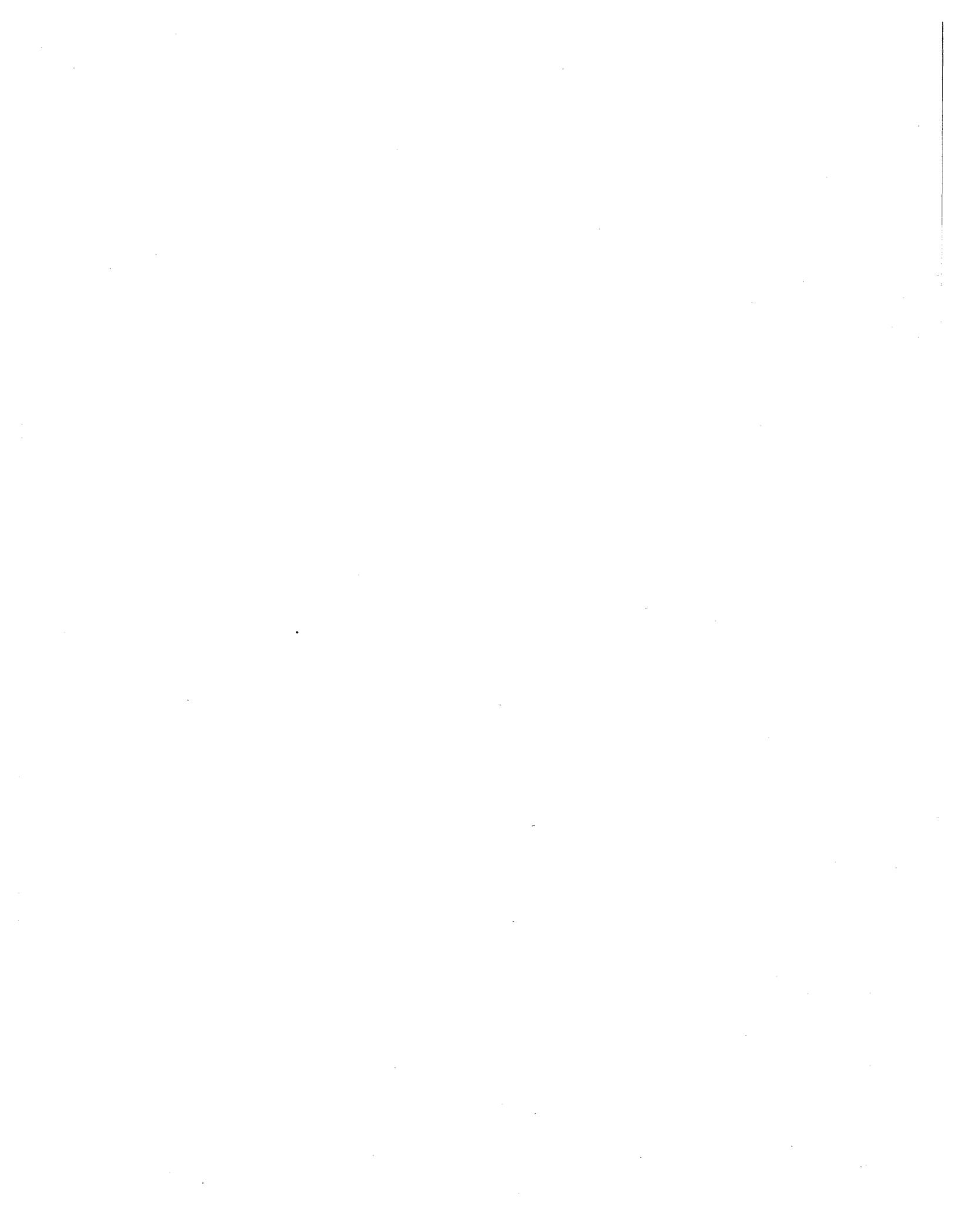
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TITLE 33
Health and Consolidated Laboratories, Department of

OCTOBER 1987

33-15-01-04. Definitions. As used in this article, except as otherwise specifically provided or where the context indicates otherwise, the following words shall have the meanings ascribed to them in this section:

1. "Act" means North Dakota Century Code chapter 23-25.
2. "Air contaminant" means any solid, liquid, gas, or odorous substance or any combination thereof.
3. "Air pollution" means the presence in the outdoor atmosphere of one or more air contaminants in such quantities and duration as is or may be injurious to human health, welfare, or property, animal or plant life, or which unreasonably interferes with the enjoyment of life or property.
4. "Ambient air" means the surrounding outside air.
5. "ASME" means the American society of mechanical engineers.
6. "Control equipment" means any device or contrivance which prevents or reduces emissions.
7. "Department" means the North Dakota state department of health and consolidated laboratories.
8. "Emission" means a release of air contaminants into the ambient air.
9. "Existing" means equipment, machines, devices, articles, contrivances, or installations which are in being on or before July 1, 1970, unless specifically designated within this article; except that any existing equipment, machine, device, contrivance, or installation which is altered, repaired, or

rebuilt after July 1, 1970, shall be reclassified as "new" if such alteration, rebuilding, or repair results in the emission of an additional or greater amount of air contaminants.

10. "Fuel burning equipment" means any furnace, boiler apparatus, stack, or appurtenances thereto used in the process of burning fuel or other combustible material for the primary purpose of producing heat or power by indirect heat transfer.
11. "Fugitive emissions" means solid airborne particulate matter, fumes, gases, mist, smoke, odorous matter, vapors, or any combination thereof generated incidental to an operation process procedure or emitted from any source other than through a well-defined stack or chimney.
12. "Garbage" means putrescible animal and vegetable wastes resulting from the handling, preparation, cooking, and consumption of food, including wastes from markets, storage facilities, handling, and sale of produce and other food products.
13. "Heat input" means the aggregate heat content of all fuels whose products of combustion pass through a stack or stacks. The heat input value to be used shall be the equipment manufacturer's or designer's guaranteed maximum input, whichever is greater.
14. "Incinerator" means any article, machine, equipment, device, contrivance, structure, or part of a structure used for the destruction of garbage, rubbish, or other wastes by burning or to process salvageable material by burning.
15. "Installation" means any property, real or personal, including, but not limited to, processing equipment, manufacturing equipment, fuel burning equipment, incinerators, or any other equipment, or construction, capable of creating or causing emissions.
16. "Multiple chamber incinerator" means any article, machine, equipment, contrivance, structure, or part of a structure used to dispose of combustible refuse by burning, consisting of three or more refractory lined combustion furnaces in series physically separated by refractory walls, interconnected by gas passage ports or ducts and employing adequate parameters necessary for maximum combustion of the material to be burned.
17. "New" means equipment, machines, devices, articles, contrivances, or installations built or installed on or after July 1, 1970, unless specifically designated within this article, and installations existing at said stated time which are later altered, repaired, or rebuilt and result in the emission of an additional or greater amount of air contaminants.

18. "Opacity" means the degree to which emissions reduce the transmission of light and obscure the view of an object in the background.
19. "Open burning" means the burning of any matter in such a manner that the products of combustion resulting from the burning are emitted directly into the ambient air without passing through an adequate stack, duct, or chimney.
20. "Particulate matter" means any material, except water in uncombined form that is or has been airborne, and exists as a liquid or a solid at standard conditions.
21. "Person" means any individual, corporation, partnership, firm, association, trust, estate, public or private institution, group, agency, political subdivision of this state, any other state or political subdivision or agency thereof and any legal successor, representative agent, or agency of the foregoing.
22. "Pesticide" includes (a) any agent, substance, or mixture of substances intended to prevent, destroy, control, or mitigate any insect, rodent, nematode, predatory animal, snail, slug, bacterium, weed, and any other form of plant or animal life, fungus, or virus, that may infect or be detrimental to persons, vegetation, crops, animals, structures, or households or be present in any environment or which the department may declare to be a pest, except those bacteria, fungi, protozoa, or viruses on or in living man or other animals; (b) any agent, substance, or mixture of substances intended to be used as a plant regulator, defoliant, or desiccant; and (c) any other similar substance so designated by the department, including herbicides, insecticides, fungicides, nematocides, molluscicides, rodenticides, lampreycides, plant regulators, gametocides, post-harvest decay preventatives, and antioxidants.
23. "Premises" means any property, piece of land or real estate, or building.
24. "Process weight" means the total weight of all materials introduced into any specific process which may cause emissions. Solid fuels charged will be considered as part of the process weight, but liquid and gaseous fuels and combustion air will not.
25. "Process weight rate" means the rate established as follows:
 - a. For continuous or longrun steady state operations, the total process weight for the entire period of continuous operation or for a typical portion thereof, divided by the number of hours of such period or portion thereof.

- b. For cyclical or batch operations, the total process weight for a period that covers a complete operation or an integral number of cycles, divided by the hours of actual process operation during such a period. Where the nature of any process or operation or the design of any equipment is such as to permit more than one interpretation of this definition, the interpretation that results in the minimum value for allowable emission shall apply.
26. "Public nuisance" means any condition of the ambient air beyond the property line of the offending person which is injurious to health, or offensive to the senses, or which causes or constitutes an obstruction to the free use of property, so as to interfere with the comfortable enjoyment of life or property.
27. "Refuse" means any combustible waste material, trade waste, rubbish, or garbage containing carbon in a free or combined state.
28. "Rubbish" means nonputrescible solid wastes consisting of both combustible and noncombustible wastes. Combustible rubbish includes paper, rags, cartons, wood, furniture, rubber, plastics, yard trimmings, leaves, and similar materials. Noncombustible rubbish includes glass, crockery, cans, dust, metal furniture and like materials which will not burn at ordinary incinerator temperatures (one thousand six hundred to one thousand eight hundred degrees Fahrenheit [1144 degrees Kelvin to 1255 degrees Kelvin]).
29. "Salvage operation" means any operation conducted in whole or in part for the salvaging or reclaiming of any product or material.
30. "Smoke" means small ~~gas-borne~~ gasborne particles resulting from incomplete combustion, consisting predominantly, but not exclusively, of carbon, ash, and other combustible material, that form a visible plume in the air.
31. "Source" means any property, real or personal, or person contributing to air pollution.
32. "Source operation" means the last operation preceding emission which operation (a) results in the separation of the air contaminant from the process materials or in the conversion of the process materials into air contaminants, as in the case of combustion fuel; and (b) is not an air pollution abatement operation.
33. "Stack or chimney" means any flue, conduit, or duct arranged to conduct emissions.

34. "Submerged fill pipe" means any fill pipe the discharge opening of which is entirely submerged when the liquid level is six inches [15.24 centimeters] above the bottom of the tank; or when applied to a tank which is loaded from the side, means any fill pipe the discharge opening of which is entirely submerged when the liquid level is one and one-half times the fill pipe diameter in inches [centimeters] above the bottom of the tank.
35. "Standard conditions" means a dry gas temperature of sixty-eight degrees Fahrenheit [293 degrees Kelvin] and a gas pressure of fourteen and seven-tenths pounds per square inch absolute [101.3 kilopascals].
36. "Trade waste" means solid, liquid, or gaseous waste material resulting from construction or the conduct of any business, trade, or industry, or any demolition operation, including, but not limited to, wood, wood containing preservatives, plastics, cartons, grease, oil, chemicals, and cinders.
37. "Volatile organic compounds" means any compound containing carbon and hydrogen or containing carbon and hydrogen in combination with any other element which has a modified Reid vapor pressure of one and one-half pounds per square inch absolute [10.3 kilopascals] or greater under actual storage conditions.
38. "Waste classification" means the seven classifications of waste as defined by the incinerator institute of America and American society of mechanical engineers.

History: Amended effective October 1, 1987.

General Authority: NDCC 23-25-03

Law Implemented: NDCC 23-25-03

33-15-01-13. Shutdown and malfunction of an installation - Requirement for notification.

1. **Maintenance shutdowns.** In the case of shutdown of air pollution control equipment for necessary scheduled maintenance, the intent to shutdown such equipment shall be reported to the department at least twenty-four hours prior to the planned shutdown provided that the air contaminating source will be operated while the control equipment is not in service. Such prior notice shall include the following:
 - a. Identification of the specific facility to be taken out of service as well as its location and permit number.
 - b. The expected length of time that the air pollution control equipment will be out of service.

- c. The nature and estimated quantity of emissions of air pollutants likely to be emitted during the shutdown period.
- d. Measures such as the use of off-shift labor and equipment that will be taken to minimize the length of the shutdown period.
- e. The reasons that it would be impossible or impractical to shutdown the source operation during the maintenance period.

2. Malfunctions.

a. When a malfunction in any installation occurs that can be expected to last longer than twenty-four hours and cause the emission of air contaminants in violation of this article or other applicable rules and regulations, the person responsible for such installation shall immediately notify the department of such malfunction and provide as soon as possible during normal working hours. The notification must contain a statement giving all pertinent facts, including the estimated duration of the breakdown. On receipt of this notification, the department may permit the continuance of the operation for a period not to exceed ten days provided that written application is made to the department. Such application shall be made within twenty-four hours of the malfunction or within such other time period as the department may specify. In cases of major equipment failure, additional time period may be granted by the department provided a corrective program has been submitted by the person and approved by the department. The department shall be notified when the condition causing the malfunction has been corrected.

b. Immediate notification to the department is required for any malfunction that would threaten health or welfare, or pose an imminent danger. During normal working hours the department can be contacted at 701-224-2348. After hours the department can be contacted through the twenty-four-hour state radio emergency number 1-800-472-2121.

3. Continuous emission monitoring system failures. When a failure of a continuous emission monitoring system occurs, an alternative method, acceptable to the department, for measuring or estimating emissions must be undertaken as soon as possible. Timely repair of the emission monitoring system must be made.

History: Amended effective October 1, 1987.

General Authority: NDCC 23-25-03

33-15-01-16. Confidentiality of records.

1. Public inspection. Any record, report, or information obtained or submitted pursuant to this article will be available to the public for inspection and copying during normal working hours unless the department certifies that the information is confidential. Anyone requesting department assistance in collecting, copying, certifying, or mailing public information must tender, in advance, the reasonable cost of those services.
2. Information submitted as trade secrets. The department may certify records, reports, or information, or particular part thereof, other than emission data, as confidential upon a showing that the information would, if made public, divulge methods or processes entitled to protection as trade secrets. Any person submitting trade secret information must present the information to the department in a sealed envelope marked "CONFIDENTIAL". Each page of any document claimed confidential must be clearly marked with the word "CONFIDENTIAL". The submission must contain two parts:
 - a. The material claimed to contain trade secret information; and
 - b. A request for confidential treatment including:
 - (1) All information for which no claim is being made;
 - (2) An affidavit stating how and why the information fulfills the conditions of confidentiality under this subsection; and
 - (3) An index to and summary of the information submitted which is suitable for release to the public.
3. Accepted trade secret claims. All information which meets the test of subsection 2 must be marked by the department as "ACCEPTED" and protected as confidential information.
4. Rejected trade secret claims. If the department determines that information submitted pursuant to subsection 2 does not meet the criteria of that subsection for confidential treatment, the department shall promptly notify the person submitting the information of that determination. The department shall in that event give that person at least twenty days in which to:
 - a. Accept the determination of the department;

- b. Request that the information be returned to the person;
- c. Further justify the contention that the information deserves protection as a trade secret; or
- d. Further limit the scope of information for which a claim of confidentiality is made.

If the person who submitted the information fails within the time period allowed by the department to demonstrate satisfactorily to the department that the information in the form presented qualifies for confidential treatment, the department shall promptly notify that person of that determination. If the person submitting the information did not request that it be returned, the department shall mark the information "REJECTED" and treat it as public information. The department's action on a reconsideration constitutes final agency action for purposes of judicial review. Appeal of this action must be to an appropriate district court.

- 5. Appeal of nondisclosure claims. Any person who identifies and tenders the reasonable cost of collecting, copying, certifying, and mailing particular information held by the department under subsection 2 may file with the department a petition for reconsideration stating how and why the public's interest would be better served by the release of the requested information than by its retention as confidential by the department. The department shall then reconsider the confidential status of the information. The department action on a petition for reconsideration constitutes final agency action for purposes of judicial review. Appeal of the department's action must be to an appropriate district court.
- 6. Retention of confidential information. All information which is accepted by the department as confidential must be stored in locked filing cabinets. Only those personnel of the department specifically designated by the department shall have access to the information contained therein. The department may not designate any person to have access to confidential information unless that person requires such access in order to carry out that person's responsibilities and duties. No person may disclose any confidential information except in accordance with the provisions of this section. No copies may be made except as strictly necessary for internal department use or as specified in subsection 8.
- 7. Maintenance of log. Persons designated by the department to maintain confidential files as herein provided shall maintain a log showing the persons who have had access to the confidential files and the date of such access.

8. Transmittals of confidential information. As necessary, confidential information acquired by the department under the provisions of the act, or this article, may be transmitted to such federal, state, or local agencies, when necessary for purposes of administration of any federal, state, or local air pollution control laws, which make an adequate showing of need to the department, provided that such transmittal is made under a continuing assurance of confidentiality.
9. Relationship to issuance of permits. The department may not process any application for a permit to construct or operate pursuant to chapter 33-15-14 or 33-15-15 until final agency action on confidential trade secret claims has been completed.

History: Effective October 1, 1987.

General Authority: NDCC 23-25-03

Law Implemented: NDCC 23-25-06

33-15-02-01. Scope. The ambient air quality standards as presented in this chapter pertain to the environmental air of the ambient air within the boundaries of North Dakota.

History: Amended effective October 1, 1987.

General Authority: NDCC 23-25-03, 28-32-02

Law Implemented: NDCC 23-25-03

33-15-02-02. Purpose. It is the purpose of these air quality standards to set forth levels of air quality for the maintenance of public health and safety, welfare and to provide guidance to the city, county, and township boards of health in conducting programs to abate governmental and other parties interested in abating air pollution. These standards set forth a mechanism of achieving cleaner air and Since the ambient air in North Dakota is generally cleaner than these standards, the standards are not a permit for the unnecessary degradation of air quality.

History: Amended effective October 1, 1987.

General Authority: NDCC 23-25-03, 28-32-02

Law Implemented: NDCC 23-25-03

33-15-02-03. Air quality guidelines. In keeping with the purpose of these ambient air quality standards, the quality should be such that:

1. The public health of even will be protected including sensitive or susceptible segments of the population will not be adversely affected.
2. Concentrations of pollutants will not cause public nuisance or annoyance.

3. ~~Significant damage to Agricultural crops, animals, ornamental plants, forest, and agricultural crops will not occur~~ other plant life will be protected.
4. Visibility will ~~not be significantly reduced~~ protected.
5. Metals or other materials will ~~not be significantly corroded or damaged~~ protected from abnormal corrosion or damage.
6. Fabrics will not be soiled, deteriorated, or their colors affected.
7. Natural scenery will not be obscured.

History: Amended effective October 1, 1987.

General Authority: NDCC 23-25-03, 28-32-02

Law Implemented: NDCC 23-25-03

33-15-02-04. Ambient air quality standards.

1. **Particulates and gases.** The standards of ambient air quality listed in Table 1 define the limits of air contamination by particulates and gases, ~~above which limits the ambient air.~~ Any air contaminant which exceeds these limits is hereby declared to be unacceptable and require requires air pollution control measures. Until additional pertinent information becomes available through surveillance and research with respect to the effects of the air contaminants listed in Table 1, the air quality limits listed in Table 1 shall apply in North Dakota. The stated limits stated, include normal background levels of particulates and gases.
2. **Radioactive substances.** The ambient air shall not contain any radioactive substances exceeding the concentrations specified in article 33-10.
3. **Other air contaminants.** The ambient air shall not contain air contaminants, including toxic contaminants, in concentrations that would be injurious to human health or well-being, or unreasonably interfere with the enjoyment of property or that would injure plant or animal life. The department may establish, on a case-by-case basis, specific limits of concentration for these contaminants.

History: Amended effective October 1, 1987.

General Authority: NDCC 23-25-03, 28-32-02

Law Implemented: NDCC 23-25-03

33-15-02-05. Methods of sampling and analysis. Air contaminants listed in Table 1 shall be measured by the method or methods listed in Table 2, or by such other methods approved by the department. The publications or their replacements listed in Table 2 are made part of this chapter by reference title 40, Code of Federal Regulations parts 50 and 53. Hydrogen sulfide sampling equipment and methods must be approved by the department. Hydrogen sulfide analyzers must be designed for use as ambient air quality monitors and must be capable of meeting performance specifications as determined by the department.

The sampling and analytical procedures employed and the numbers number, duration, and location of samples to be taken to measure ambient levels of air contaminants shall be consistent with obtaining accurate results which are statistically significant precise, accurate, and representative of the conditions being evaluated.

History: Amended effective October 1, 1987.

General Authority: NDCC 23-25-03, 28-32-02

Law Implemented: NDCC 23-25-03

33-15-02-07. Concentrations of air contaminants in the ambient air restricted.

1. No person ~~shall~~ may cause or permit the emission of air contaminants to the ambient air from any premises source in such a manner and amounts amount that the concentrations and frequencies attributable to such emission exceed those shown in exceeds, at any place beyond the premises on which the source is located, those standards stated in section 33-15-02-04 in the ambient air at any place beyond the premises on which the source is located.
2. Nothing in any other part or section of this article ~~shall~~ may in any manner be construed as authorizing or legalizing the emission of air contaminants in such manner as prohibited in subsection 1.

History: Amended effective October 1, 1987.

General Authority: NDCC 23-25-03, 28-32-02

Law Implemented: NDCC 23-25-03

Table 1. AMBIENT AIR QUALITY STANDARDS

Air Contaminants	Standards (Maximum Permissible Concentrations)	
<u>Particulates</u>	60	micrograms per cubic meter of air, maximum annual geometric mean
Total Suspended Particulate	150	micrograms per cubic meter of air, maximum 24-hour concentration not to be exceeded more than once per year
Settled Particulate (Dustfall)	15	tens per square mile per month, maximum 3-month arithmetic mean in residential areas
	30	tens per square mile per month, maximum 3-month arithmetic mean in heavy industrial areas
Coefficient of Haze	0.4	Col. per 1,000 lineal feet, maximum annual geometric mean
.....		
<u>Sulfur Oxides</u>	60	micrograms per cubic meter of air (0.02 0.023 ppm), maximum annual arithmetic mean
Sulfur Dioxide	260	micrograms per cubic meter of air (0.10 0.099 ppm), maximum 24-hour concentration
	715	micrograms per cubic meter of air (0.28 0.273 ppm), maximum 1-hour concentration
Reactive Sulfur (Sulfation)	0.25	milligram sulfur trioxide per 100 square centimeters per day, maximum annual arithmetic mean
	0.50	milligram sulfur trioxide per 100 square centimeters per day, maximum for a 1-month period
Suspended Sulfate	4	micrograms per cubic meter of air, maximum annual arithmetic mean
	12	micrograms per cubic meter of air, maximum 24-hour concentration not to be exceeded over 1 percent of the time
Sulfuric Acid Mist	4	micrograms per cubic meter of air, maximum annual arithmetic mean
Sulfur Trioxide, or any combination thereof	12	micrograms per cubic meter of air, maximum 24-hour concentration not to be exceeded over 1 percent of the time
	30	micrograms per cubic meter of air, maximum 1-hour concentration not to be exceeded over 1 percent of the time
.....		
Hydrogen Sulfide	45	micrograms per cubic meter of air (0.032 ppm), maximum 1/2-hour concentration not to be exceeded more than twice in any 5 consecutive days

	75 70	micrograms per cubic meter of air (0.054 0.05 ppm), maximum 1/2 hour 1-hour concentration not to be exceeded ever twice a more than once per year
Carbon Monoxide	10	milligrams per cubic meter of air (9 ppm), maximum 8-hour concentration not to be exceeded more than once per year
	40	milligrams per cubic meter of air (35 ppm), maximum 1-hour concentration not to be exceeded more than once per year
Ozone	235	micrograms per cubic meter of air (0.12 ppm), maximum 1-hour concentration not to be exceeded more than once per year
Hydrocarbons	160	micrograms per cubic meter of air (0.24 ppm), maximum 3-hour concentration (6 to 9 a.m.) not to be exceeded more than once per year
Nitrogen Dioxide	100	micrograms per cubic meter of air (0.05 ppm), maximum annual arithmetic mean
	200	micrograms per cubic meter of air (0.1 ppm), maximum 1-hour concentration not to be exceeded over 1 percent of the time in any <u>3-month period calendar</u> <u>quarter</u>
Lead	1.5	micrograms per cubic meter of air, maximum arithmetic mean averaged over a calendar quarter

Table 2. METHODS OF AIR CONTAMINANT MEASUREMENT

AIR CONTAMINANT - PARTICULATES

Sampling Method	Sampling Interval*	Analytical Method
TOTAL SUSPENDED PARTICULATES		
High-Volume Sampling	24 hours	Gravimetric - Reference Method for the Determination of Suspended Particulates in the Atmosphere (High Volume Method)- Code of Federal Regulations, Title 40, Chapter I, Part 50, National Primary and Secondary Ambient Air Quality Standards, Appendix B.
SETTLED PARTICULATE (Dustfall)		
Dustfall Jar	1 month	Gravimetric - ASTM D 1739-70.
COEFFICIENT OF HAZE		
Paper Tape Sampling	3 hours	Light Transmittance - ASTM D 1704-61.

Table 2- (continued)

AIR CONTAMINANT - SULFUR OXIDES

Sampling Method	Sampling Interval*	Analytical Method
SULFUR DIOXIDE		
Absorption	Continuous, 1 Hr. or 24 Hours	Colorimetric - Reference Method for the Determination of Sulfur Dioxide in the Atmosphere (Pararosaniline Method)- Code of Federal Regulations, Title 40, Chapter I, Part 50, National Primary and Secondary Ambient Air Quality

Standards, Appendix B-

REACTIVE SULFUR (Sulfation)

Lead Peroxide Plate	1 Month	Turbidimetric, Lead Peroxide Plate - Huey, N.A., "The Lead Dioxide Estimation of Sulfur Dioxide Pollution", Journal of the Air Pollution Control Assoc. Vol. 18, pp. 610-611, September 1968.
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SUSPENDED SULFATE

High-Volume Sampling	24 Hours	Turbidimetric, Barium Sulfate Method - Selected Methods for the Measurement of Air Pollutants, U.S. Public Health Service Publication No. 999-AP-11, May 1965.
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SULFURIC ACID MIST
SULFUR TRIOXIDE

Filter Paper	1 Hour to 24 Hours	Filtration - Commins, B.F. "Determination of Particulate Acid in Town Air." Analyst, Vol. 88, pp. 364-367, May 1963.
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Table 2- (continued)

AIR CONTAMINANT - HYDROGEN SULFIDE

Sampling Method	Sampling Interval*	Analytical Method
(a) Paper Tape Sampling	1/2 Hour	Light Transmittance, Lead Acetate Impregnated Tape - Sensenbaugh, J.D. and Hemen, W.C.L., "A Low Cost Sampler for Measurement of Low Concentration of Hydrogen Sulfide", Air Repair Vol. 4, No. 1, pp. 5-7, May 1954.
(b) Absorption	1/2 Hour	Colorimetric - Jacobs, Braverman, Hochheiser, "Ultramicrodetermination of Sulfides in Air", Anal. Chem. Vol. 29, p. 1349, 1957.

Table 2- (continued)

AIR CONTAMINANT - CARBON MONOXIDE

Sampling Method	Sampling Interval*	Analytical Method
Absorption of Infrared Radiation	Continuous 1 Hour or 8 Hours	Non-Dispersive Infrared Spectrometry - Reference Method for the Continuous Measurement of Carbon Monoxide in the Atmosphere (Non-Dispersive Infrared Spectrometry). Code of Federal Regulations, Title 40, Chapter I, Part 50, National Primary and Secondary Ambient Air Quality Standards, Appendix C.

Table 2- (continued)

AIR CONTAMINANT - OZONE

Sampling Method	Sampling Interval*	Analytical Method
Chemiluminescent	Continuous, 1 Hour	Chemiluminescent, Photomultiplier Detector - Measurement Principle and Calibration Procedure for the Measurement of Ozone in the Atmosphere. Code of Federal Regulations, Title 40, Chapter I, Part 50, National Primary and Secondary Ambient Air Quality Standards, Appendix D.

Table 2- (continued)

AIR CONTAMINANT - HYDROCARBONS

Sampling Method	Sampling Interval*	Analytical Method
Flame Ionization Detector	Semi-continuous, 3 Hours	Flame Ionization - Reference Method for the Determination of Hydrocarbons Corrected for Methane. Code of Federal Regulations, Title 40, Chapter I, Part 50, National Primary and Secondary Ambient Air Quality Standards, Appendix E.

Table 2- (continued)

AIR CONTAMINANT - NITROGEN DIOXIDE

Sampling Method	Sampling Interval*	Analytical Method
Absorption	Continuous, 1 Hour	Colorimetric - Reference Method for the Determination of Nitrogen Dioxide in the Atmosphere (24-Hour Sampling Method)- Code of Federal Regulations, Title 40, Chapter 1, Part 50, National Primary and Secondary Ambient Air Quality Standards, Appendix F.

Table 2- (continued)

AIR CONTAMINANT - LEAD

Sampling Method	Sampling Interval*	Analytical Method
High-Volume Sampling	24 Hours	Atomic Absorption Spectrometry - Reference Method for The Determination of Lead in Suspended Particulate Matter Collected from Ambient Air Code of Federal Regulations, Title 40, Chapter 1, Part 50, National Primary and Secondary Ambient Air Quality Standards, Appendix G.

Normal Sampling Interval- Other Sampling Intervals May be Used if Approved by the Department.

History: Amended effective March 1, 1980.
[Repealed effective October 1, 1987.]

33-15-03-01. Restrictions applicable to existing installations. No person shall may discharge into the ambient air from any single source of emission whatsoever, with the exception of existing incinerators, any

air contaminant which exhibits an opacity greater than forty percent ~~opacity~~ except that a maximum of sixty percent opacity shall be permissible for not more than one six-minute period per hour. Provided, however:

1. In consideration of public health and welfare, when it becomes both technically and economically feasible, the source shall comply with visible air contaminant restrictions as outlined in section 33-15-03-02 when directed by the department.
2. Any existing source which has installed control technology capable of complying with the visible air contaminant restrictions applicable to new installations shall comply with section 33-15-03-02 when directed by the department.
3. If any party is aggrieved by the department's decision as referenced in subsections 1 and 2, that party may request a hearing before the department to review such decision. Such hearing must be conducted according to article 33-22 and North Dakota Century Code chapter 28-32. If a hearing is requested, the requirements of section 33-15-03-02 are not effective until ordered by the department at the conclusion of the hearing process.

History: Amended effective October 1, 1987.

General Authority: NDCC 23-25-03, 28-32-02

Law Implemented: NDCC 23-25-03

33-15-03-02. Restrictions applicable to new installations and all incinerators. No person ~~shall~~ may discharge into the ambient air from any single source of emission whatsoever any air contaminant which exhibits an opacity greater than twenty percent ~~opacity~~ except that a maximum of forty percent opacity ~~shall be~~ is permissible for not more than one six-minute period per hour.

History: Amended effective October 1, 1987.

General Authority: NDCC 23-25-03, 28-32-02

Law Implemented: NDCC 23-25-03

33-15-03-03. Restrictions applicable to fugitive emissions. No person ~~shall~~ may discharge into the ambient air from any source of fugitive emissions, as determined or identified by the department, any air contaminant which exhibits an opacity greater than forty percent ~~opacity~~ for more than one six-minute period per hour ~~having~~. Such visible emissions shall have been visibly transported off the property of emission origination and remains visible to an observer positioned off said property when sighting along a line which does not cross the property of emission origination.

History: Amended effective October 1, 1987.

General Authority: NDCC 23-25-03, 28-32-02

Law Implemented: NDCC 23-25-03

33-15-03-03.1. Restrictions applicable to flares. No person ~~shall~~ may discharge into the ambient air from any single source of emission whatsoever any air contaminant which exhibits an opacity greater than twenty percent ~~opacity~~ except that a maximum of sixty percent opacity ~~shall be~~ is permissible for not more than one six-minute period per hour.

History: Effective February 1, 1982; amended effective October 1, 1987.

General Authority: NDCC 23-25-03, 28-32-02

Law Implemented: NDCC 23-25-03

33-15-03-05. Method of measurement. Compliance with visible emission standards in chapter 33-15-03 shall be determined by conducting observations in accordance with Reference Method 9 of Appendix A to chapter 33-15-12. Opacity readings of portions of plumes which contain condensed uncombined water vapor shall not be used for purposes of determining compliance with visible emissions standards. Per hour for Reference Method 9 means any contiguous sixty-minute time period. When Reference Method 9 opacity readings are not available, continuous opacity monitors may be substituted. Per hour for monitors means any sixty-minute period commencing on the hour. The results of continuous monitoring by transmissometer, which indicate that the opacity at the time visible emissions were taken, were not in excess of the standard, are probative but not conclusive evidence of the actual opacity of an emission; provided, that the source shall meet the burden of proving that the instrument used meets (at the time of the alleged violation) Performance Specification 1 in Appendix B, has been properly maintained and (at the time of the alleged violation) calibrated, and that the resulting data have not been tampered with in any way.

History: Amended effective October 1, 1987.

General Authority: NDCC 23-25-03, 28-32-02

Law Implemented: NDCC 23-25-03

33-15-04-01. Refuse burning restrictions. No person ~~shall~~ may dispose of refuse and other combustible material by open burning, or cause, ~~suffer,~~ allow, or permit open burning of refuse and other combustible material, except as provided for in section 33-15-04-02, and no person ~~shall~~ may conduct or cause or permit the conduct of a salvage operation by open burning.

History: Amended effective October 1, 1987.

General Authority: NDCC 23-25-03, 28-32-02

Law Implemented: NDCC 23-25-03

33-15-04-02. Permissible open burning. The open burning of refuse and other combustible material may be conducted as specified in the subsections of this section if no public nuisance is or will be created and if the burning is not prohibited by, and is conducted in compliance with, other applicable laws, ordinances, and regulations. All open burning must comply with the rural fire mitigation action guide included in the North Dakota rural fire contingency plan and with provisions of the state fire code.

The authority to conduct open burning under the provisions of this section does not exempt or excuse a person from the consequences, damages, or injuries which may result therefrom.

1. Fires purposely set for the instruction and training of public and industrial firefighting personnel **when authorized by the appropriate governmental entity.**
2. Fires set for the elimination of a fire hazard which cannot be abated by any other means when authorized by the appropriate governmental entity, including the local fire department.
3. Fires set for the removal of dangerous or hazardous material, where there is no other practical or lawful method of disposal and burning is approved in advance by the department. Where there is imminent danger to human health or safety and where there is no other practical or lawful method of disposal, burning can be initiated without prior notice to the department, provided notice is furnished as soon as practical.
4. Campfires and other fires used solely for recreational purposes, for ceremonial occasions, or for outdoor preparation of food.
5. Fires purposely set to forest or rangelands for a specific reason in the management of forest, rangeland, or game in accordance with practices recommended by the North Dakota game and fish department, the North Dakota department of agriculture, and the United States forest service, and the burning is approved in advance by the department.
6. The burning of trees, brush, grass, wood, and other vegetable matter in the clearing of land, right-of-way maintenance operations, and agricultural crop burning if all of the following conditions are met:
 - a. Prevailing winds at the time of the burning must be away from any city.
 - b. **The location of the burning must not be conducted adjacent to an occupied residence other than those located on the property on which the burning is conducted or in such proximity thereto that the ambient**

air of such occupied residence may be affected by the air contaminants being emitted.

- c. Care must be used to minimize the amount of dirt on the material being burned.
 - d. Oils, rubber, and other materials which produce unreasonable amounts of air contaminants may not be burned.
 - e. The initial burning may begin only between three hours after sunrise and three hours before sunset and additional fuel may not be intentionally added to the fire at times outside the limits stated above.
 - f. The burning must not be conducted adjacent to any highway or public road so as to create a traffic hazard.
 - g. The burning must not be conducted within one mile [1.61 kilometers] of any military, commercial, county, municipal, or private airport or landing strip.
7. Where no municipal collection and disposal service is available, the burning of refuse and other combustible materials generated in the operation of a domestic household if ~~all of~~ the following conditions are met:
- a. The material to be burned must not be the combined waste from a building designed to accommodate more than three such households.
 - b. The burning must be conducted on the property on which the waste is generated.
 - ~~e. The initial burning may begin only between three hours after sunrise and three hours before sunset and additional fuel may not be intentionally added to the fire at times outside the limits stated above.~~
8. The burning of liquid hydrocarbons which are spilled or lost as a result of pipeline breaks or other accidents involving the transportation of such materials or which are generated as wastes as the result of oil exploration, development, production, refining, or processing operations if all of ~~the~~ the following conditions are met:
- a. The material cannot be practicably recovered or otherwise lawfully disposed of in some other manner.
 - b. The burning must not be conducted within a city or adjacent to an occupied residence or in such proximity thereto that the ambient air of such city or occupied

residence may be affected by the air contaminants being emitted.

- c. The initial burning may begin only between three hours after sunrise and three hours before sunset and additional fuel may not be intentionally added to the fire at times outside the limits stated above. Except in an emergency, the burning of liquid hydrocarbons may not be conducted in such proximity of any class I area as defined in chapter 33-15-15, that the ambient air of such area is adversely impacted by the air contaminants emitted.
- d. Except in an emergency, the burning of liquid hydrocarbons may not be conducted in such proximity of any class I area that the visibility of such area is adversely impacted as defined in chapter 33-15-19.
- e. The burning must be controlled so that a traffic hazard is not created as the result of the air contaminants being emitted.
- e- f. The burning must be approved in advance by the department, except as provided in subsection 3.

History: Amended effective October 1, 1987.

General Authority: NDCC 23-25-03, 28-32-02

Law Implemented: NDCC 23-25-03

33-15-05-01. Restriction of emission of particulate matter from industrial processes.

1. General provisions.

- a. This section applies to any operation, process, or activity from which particulate matter is emitted except the burning of fuel for indirect heating in which the products of combustion do not come into direct contact with process materials, the burning of refuse, and the processing of salvable material by burning.
- b. The process weight rate per hour referred to in this section shall be based upon the normal operation maximum capacity of the equipment, and if such normal maximum capacity should be increased by process or equipment changes, the new normal maximum capacity shall be used as the process weight in determining the allowable emissions.

2. **Emission limitations.** No person shall cause, suffer, allow, or permit the emission of particulate matter in any one hour from any source in excess of the amount shown in table 3 for the process weight allocated to such source.

3- a. Exceptions.

a- (1) Temporary operational breakdowns or cleaning of air pollution equipment for any process are permitted provided the owner or operator immediately advises the department of the circumstances and outlines an acceptable corrective program and provided such operations do not cause an immediate public health hazard.

b- (2) The department may prescribe air quality control requirements that are more restrictive and more extensive than provided in subsection 2 if the particulate matter emitted is a radioactive, toxic, or deleterious substance which may affect human health or well-being or that would cause significant damage to animal or plant life.

c- (3) Any existing emission source which has particulate collection equipment with a collection efficiency of ninety-nine and seven-tenths percent or more by weight shall be considered as meeting the provisions of subsection 2. The efficiency of the particulate collection equipment shall be determined as outlined in section 33-15-05-04 with the process being served by the particulate collection equipment being run at normal operation maximum capacity.

d- (4) Any portable emission source, not operated at the same premise for more than six months, shall be considered as meeting the provisions of subsection 2 if the source stack or stacks are equipped with particulate collection efficiency of eighty-five percent or more by weight as determined in paragraph 3, and all of the following conditions are met:

(1) (a) The source must not be located within a city.

(2) (b) The source must not be located within one-half mile [.80 kilometers] of any occupied residence, and within one mile [1.61 kilometers] of the source there shall be no more than two occupied residences.

(3) (c) The source must not be located within one-quarter mile [.40 kilometers] of any highway or public road.

(4) The source stack or stacks must be equipped with particulate collection equipment with a collection efficiency of eighty-five percent or more by weight. The

efficiency of the particulate collection equipment shall be determined as in subdivision e-

b. Grievance procedure. If any party is aggrieved by the department's decision as referenced in paragraph 2 of subdivision a, that party may request a hearing before the department to review such decision. Such hearing must be conducted according to article 33-22 and North Dakota Century Code chapter 28-32. If a hearing is requested, the requirements of paragaraph 2 of subdivision a are not effective until ordered by the department at the conclusion of the hearing process.

Table 3.

Maximum Allowable Rates of Emission of Particulate Matter from Industrial Processes

English		Metric	
Process Weight Rate (p)	Allowable Emission Rate (E)	Process Weight Rate (p)	Allowable Emission Rate (E)
tons/hr	lb/hr	metric tons/hr	kg/hr
0.05	0.551	0.045	0.25
0.25	1.62	0.23	0.74
0.50	2.58	0.45	1.16
2.50	7.58	2.27	3.43
5.00	12.05	4.54	5.46
10.00	19.18	9.07	8.67
25.00	35.43	22.68	16.03
50.00	44.58	45.36	20.21
250.00	60.96	226.80	27.65
500.00	68.96	453.59	31.29
1000.00	77.59	907.19	35.21
2500.00	90.06	2267.96	40.87

Interpolation of the data in this table for process weight rates up to 30 tons/hr [27.21 metric tons/hr] shall be accomplished by the use of the equations:

$$E = 4.10 p^{0.67} \quad (\text{English units})$$

$$E = 1.98 p^{0.67} \quad (\text{Metric units})$$

and interpolation and extrapolation of the data for process weight rates in excess of 30 tons/hr [27.21 metric tons/hr] shall be accomplished by the use of the equations:

$$E = 55.0 p^{0.11} - 40 \quad (\text{English units})$$

$$E = 25.25 p^{0.11} - 18.2 \quad (\text{Metric units})$$

where E = allowable emission rate in lb/hr [kg/hr] and p = process weight rate in tons/hr [metric tons/hr].

History: Amended effective October 1, 1987.

General Authority: NDCC 23-25-03, 28-32-02

Law Implemented: NDCC 23-25-03

33-15-05-02. Maximum allowable emission of particulate matter from fuel burning equipment used for indirect heating.

1. General provisions.

- a. This section applies to installations in which fuel is burned for the primary purpose of producing steam, hot water, hot air or other indirect heating of liquids, gases, or solids and, in the course of doing so, the products of combustion do not come into direct contact with process materials. Fuels include those such as coal, coke, lignite, coke breeze, fuel oil, and wood but do not include refuse. When any products or byproducts of a manufacturing process are burned for the same purpose or in conjunction with any fuel, the same maximum emission limitations shall apply.
- b. ~~The total heat input of all fuel burning units at the source of emission shall be used for determining the~~ maximum allowable particulate matter which may be emitted from fuel burning units at a source is determined by the maximum or manufacturer's rated heat input of each unit.

2. Emission limitations.

- a. Existing installations. No person shall cause or permit the emission of particulate matter, caused by combustion of fuel in any existing fuel burning equipment, from any stack or chimney in excess of eighty-hundredths pounds of particulates per million ~~Btu~~ British thermal units [344 nanograms per joule] heat input. Provided, however, as technology develops for making new control equipment compatible, both technically and economically, with present plants they shall comply with limitations on emissions of particulate matter from fuel burning

installations as outlined in subdivision b when directed by the department.

- b. New installations. No person shall cause or permit the emission of particulate matter, caused by the combustion of fuel in any new fuel burning equipment, from any stack or chimney in excess of the quantity set forth in Table table 4.
- c. Means shall be provided in all newly constructed units and wherever practicable in existing units to allow the periodic measurement of fly ash and other particulate matter.
- d. No person ~~shall~~ may burn or cause or permit the burning of refuse including preservative treated wood in any installation which was designed for the sole purpose of burning fuel unless approved by the department.
- e. Sources subject to section 33-15-05-02 with a heat input of five million not more than ten million British thermal units per hour or less, and sources with multiple boilers each with heat inputs of five million British thermal units per hour or less and with a total aggregate heat input of less not more than ten million British thermal units per hour shall be exempt from the allowable rate of emissions set forth in Table table 4. These sources shall be subject to visible emission and ambient air quality standards.
- f. Any new or existing source whose heat input is greater than two hundred fifty million British thermal units per hour and is equipped with state of the art control technology capable of complying with the particulate emission limitations of paragraph 1 of subdivision c of subsection 1 of section 33-15-12-04 shall comply with such limitations when directed by the department.
- g. If any party is aggrieved by the department's decision as referenced in subdivision a or f, that party may request a hearing before the department to review such decision. Such hearing must be conducted according to article 33-22 and North Dakota Century Code chapter 28-32. If a hearing is requested, the emission limitations as referenced in subdivision a or f (whichever is applicable) are not effective until ordered by the department at the conclusion of the hearing process.

Table 4.

Maximum Allowable Rates of Emission of
Particulate Matter from New
Fuel Burning Equipment

Heat Input (H)	Allowable Emission Rate (E)	Heat Input (H)	Allowable Emission Rate (E)
10^6 Btu/hr	lb/hr $\times 10^6$ Btu	joules/hr	nanogram/hr joule
10 or less	0.600	1.05×10^{10}	258
50	0.486	5.27×10^{10}	209
100	0.443	1.05×10^{11}	191
500	0.359	5.27×10^{11}	155
1,000	0.328	1.05×10^{12}	141
2,500	0.291	2.64×10^{12}	125
5,000	0.266	5.27×10^{12}	114
7,500	0.252	7.91×10^{12}	108
10,000	0.242	1.05×10^{13}	104
25,000	0.215	2.64×10^{13}	93
50,000	0.197	5.27×10^{13}	85
100,000	0.180	1.05×10^{14}	77
10 or less	exempt	1.05×10^{10}	exempt
20	0.548	2.11×10^{10}	235
30	0.519	3.16×10^{10}	224
40	0.500	4.22×10^{10}	215
50	0.486	5.27×10^{10}	209
100	0.444	1.05×10^{11}	191
150	0.421	1.58×10^{11}	181
200	0.405	2.11×10^{11}	174
250	0.394	2.64×10^{11}	169

Interpolation and extrapolation of the data in this table for heat input rates in excess of ten million Btu/hr $\{1.054 \times 10^{10}$ joules/hr} shall be accomplished by the use of equations:

$$E = 0.811 H^{-0.131} \quad (\text{English units})$$

$$E = 5307 H^{-0.131} \quad (\text{Metric units})$$

where E = allowable emission rate in ~~lb/hr/million~~ lb/million Btu of heat input [~~nanogram /hr/joule~~ nanogram/joule] and H = heat input in millions of Btu/hr [joules/hr].

History: Amended effective October 1, 1987.

General Authority: NDCC 23-25-03, 28-32-02

Law Implemented: NDCC 23-25-03

33-15-05-03. Incinerators.

1. General provisions.

- a. This section applies to any incinerator used to dispose of refuse or other wastes by burning and the processing of salvageable material by burning.
- b. The burning capacity of an incinerator shall be the manufacturer's or designer's guaranteed maximum rate or such other rate as may be determined by the department in accordance with good engineering practices. In case of conflict, the determination made by the department shall govern.

2. Restriction of emissions of particulate matter from incinerators.

- a. No person shall cause or permit the emission of particulate matter from the stack or chimney of any incinerator in excess of the amount shown in ~~Table~~ table 5 for the refuse burning rate allocated to such incinerator.
- b. All new incinerators and all existing incinerators to be modified to meet the requirements of this section and which are to burn ~~Type~~ type 2, 3, 4, 5, and 6 waste as classified by the incinerator institute of America must be equipped with auxiliary fuel burners of such capacity and design as to assure a temperature in the secondary combustion chamber of at least one thousand five hundred degrees Fahrenheit [1088 degrees Kelvin] for a minimum of three-tenths second retention time.
- c. No incinerator shall be used for the burning of refuse unless such incinerator is a multiple chamber incinerator.

Existing incinerators which are not multiple chamber incinerators may be altered, modified, or rebuilt as may be necessary to meet this requirement. The department may approve any other alteration or modification to an existing incinerator if such be found by it to be equally effective for the purpose of air pollution control as a modification or alteration which would result in a multiple chamber incinerator. All new incinerators shall be multiple chamber incinerators, provided that the department may approve any other kind of incinerator if it finds in advance of construction or installation that such other kind of incinerator is equally effective for purposes of air pollution control.

Existing incinerators burning ~~Type~~ type 2 and ~~type~~ Type 3 waste which are not multiple chamber incinerators and do not otherwise meet the requirements of subdivision a shall be modified or rebuilt in compliance with this section. Existing incinerators burning ~~Type~~ type 4, 5, or 6 waste require the specific approval of the department. Incinerators handling any garbage and organic waste must have auxiliary fuel burners that maintain a minimum temperature of one thousand five hundred degrees Fahrenheit [1088 degrees Kelvin] for a minimum of three-tenths second retention time.

Table 5.

Maximum Allowable Rates of
Emission of Particulate Matter From
Incinerators

Refuse Burning Rate (R)	Allowable Emission Rate (E)	Refuse Burning Rate (R)	Allowable Emission Rate (E)
lb/hr	lb/hr	kg/hr	kg/hr
10	0.041	4.54	0.019
50	0.174	22.68	0.079
300	0.873	136.08	0.396
700	1.87	317.51	0.850
1,000	2.58	453.59	1.17
1,500	3.38	681.39	1.53
3,500	5.97	1,587.57	2.71
8,000	10.39	3,628.72	4.71
25,000	22.29	11,339.75	10.10

100,000

56.42

45,359.00

25.57

Interpolation of the data in this table for refuse burning rates up to 1,000 lb/hr [453.59 kg/hr] shall be accomplished by the use of the equations:

$$E = 0.00515 R^{0.90} \quad \text{(English units)}$$

$$E = 0.00476 R^{0.90} \quad \text{(Metric units)}$$

and interpolation and extrapolation of the data for refuse burning rates in excess of 1,000 lb/hr [453.59 kg/hr] shall be accomplished by the use of the equations:

$$E = 0.0252 R^{0.67} \quad \text{(English units)}$$

$$E = 0.0194 R^{0.67} \quad \text{(Metric units)}$$

where E = allowable emission rate in lb/hr [kg/hr] and R = refuse burning rate in lb/hr [kg/hr].

History: Amended effective October 1, 1987.

General Authority: NDCC 23-25-03, 28-32-02

Law Implemented: NDCC 23-25-03

33-15-05-04. Methods of measurement.

1. The reference methods in ~~Appendix~~ appendix A to chapter 33-15-12, its replacement or other methods, as approved by the department shall be used to determine compliance with sections 33-15-05-01, 33-15-05-02, and 33-15-05-03 as follows:
 - a. Method 1 for selection of sampling site and sample traverses.
 - b. Method 2 for determination of stack gas velocity and volumetric flow rate.
 - c. Method 3 for gas analysis.
 - d. Method 4 for determination of moisture in the stack gas.
 - e. Method 5 for concentration of particulate matter and the associated moisture content. The sampling time for each run shall be at least sixty minutes and the minimum sampling volume shall be thirty dry cubic feet at standard conditions [0.85 dry cubic meter at standard conditions] except that smaller sampling times or volumes when necessitated by process variables or other factors may be approved by the department.

- (1) For each run using Method method 5 for fuel burning equipment the emissions expressed in pounds per million British thermal units [nanograms per joule] shall be determined by the following procedures:

$$E = CF \left(\frac{20.9}{20.9 - \%O_2} \right) \text{ or } E = CF_c \left(\frac{100}{\%CO_2} \right)$$

where:

- (a) E = pollutant emission, lb/million Btu [ng/j].
- (b) C = pollutant concentration, lb/dscf [ng/dscm].
- (c) %O₂ = oxygen content by volume, dry basis.
- (d) %CO₂ = carbon dioxide content by volume, dry basis.

The percent oxygen and percent carbon dioxide shall be determined by using the integrated or grab sampling and analysis procedures of Method method 3 by traversing the duct at the same sampling locations used for each run of Method method 5.

- (e) F and F_c = factors listed in the following table:

F FACTORS FOR VARIOUS FUELS

FUEL TYPE	F	F _c
	dscf/10 ⁶ Btu	scf/10 ⁶ Btu
Coal		
Anthracite	10140	1980
Bituminous	9820	1810
Lignite	9900	1920
Oil	9220	1430
Gas		
Natural	8740	1040
Propane	8740	1200
Butane	8740	1260
Wood	9280	1840
Wood Bark	9640	1860

For facilities firing combinations of fuels for F or F_c factors designated in this section shall be prorated in accordance with the applicable formula as follows:

$$F = \sum_{i=1}^n x_i F_i \text{ or } F_c = \sum_{i=1}^n x_i (F_c)_i$$

where:

x_i = the fraction of total heat input derived from each type of fuel.

F_i or $(F_c)_i$ = the applicable F or F_c factor for each fuel type.

n = the number of fuels being burned in combination.

- (2) For each run using Method method 5 for industrial processes the emission rate expressed in pounds per hour shall be determined by the equation, $lb/hr = (Q_s)(c)$ where:

Q_s = Volumetric flow rate of the total effluent in dscf/hr and

c = Particulate concentration in lb/dscf.

2. The heat content of fuels shall be determined in accordance with A.S.T.M. methods D2015-66(72) (solid fuels), D240-64(73) (liquid fuels), or D1826-64(70) (gaseous fuels) as applicable.

Table 5-

Maximum Allowable Rates of
Emission of Particulate Matter from
Incinerators

Refuse Burning Rate	Allowable Emission Rate	Refuse Burning Rate	Allowable Emission Rate
lb/hr	lb/hr	kg/hr	kg/hr
10	0.041	4.54	0.019
50	0.174	22.68	0.079
300	0.873	136.08	0.396
700	1.87	317.51	0.850
1,000	2.58	453.59	1.17
1,500	3.38	681.39	1.53
3,500	5.97	1,587.57	2.71
8,000	10.39	3,628.72	4.71
25,000	22.29	11,339.75	10.10
100,000	56.42	45,359.00	25.57

Interpolation of the data in this table for refuse burning rates up to 1,000 lb/hr {453.59 kg/hr} shall be accomplished by the use of the equations:-

$$E = 0.00515 R^{0.90} \quad \text{(English units)}$$

$$E = 0.00476 R^{0.90} \quad \text{(Metric units)}$$

and interpolation and extrapolation of the data for refuse burning rates in excess of 1,000 lb/hr {453.59 kg/hr} shall be accomplished by the use of the equations:-

$$E = 0.0252 R^{0.67} \quad \text{(English units)}$$

$$E = 0.0194 R^{0.67} \quad \text{(Metric units)}$$

where E = allowable emission rate in lb/hr {kg/hr} and R = refuse burning rate in lb/hr {kg/hr}.

History: Amended effective October 1, 1987.

General Authority: NDCC 23-25-03, 28-32-02

Law Implemented: NDCC 23-25-03

33-15-07-01. Requirements for construction of organic compounds facilities.

1. Scope. This section applies only to those facilities considered "new" as defined in subsection 17 of section 33-15-01-04.
2. Volatile organic compounds storage tanks. No person shall build or install or permit the building or installation of any stationary tank, reservoir, or other container of more than forty thousand gallons {151,412 liters} capacity (sixty-five thousand gallons {246,025 liters} capacity for those storage facilities constructed between July 1, 1970, and July 1, 1978) which will or might be used for storage of any volatile organic compounds unless such tank, reservoir, or other container is to have a pressure tank sufficient at all times to prevent vapor or gas loss to the ambient air or is designed, and will be built, and equipped with one of the following vapor loss control devices:
 - a. A floating roof, consisting of a pontoon type, double-deck type roof, or internal floating cover, which will rest on the surface of the liquid contents and be equipped with a closure seal or seals, to close the space between the roof edge and tank wall or an internal floating cover or other device equally effective. The

control equipment to be provided for in this subsection shall not be permitted if the volatile organic compounds to be stored will have a vapor pressure of twelve pounds per square inch [844 grams per square centimeter] absolute or greater under actual storage conditions. All tank gauging and sampling devices shall be built so as to be gas-tight except when gauging or sampling is to take place.

b- A vapor recovery system consisting of a vapor-gathering system capable of collecting the volatile organic compound vapors and gases discharged and a vapor disposal system capable of processing such vapors and gases so as to prevent their emission to the ambient air and with all tank gauging and sampling devices gas-tight except when gauging or sampling is taking place.

e- Other equipment or means of equal efficiency for purposes of air pollution control as may be approved by the department.

3- **Water separation from petroleum products.** No person shall may build or install any single or multiple compartment volatile organic liquid - water separator which normally receives effluent water containing two hundred gallons [757.08 liters] per day or more of any volatile organic liquid from any equipment processing, refining, treating, storing, or handling volatile organic liquids unless such compartment is equipped with one of the vapor loss control devices, properly installed, in good working order and in operation as described in subdivisions a, b, and e of subsection 2 8 of section 33-15-12-04.

4- 3. **Submerged fill pipes required.** No person shall may build or install or permit the building or installation of a stationary volatile organic compounds storage tank with a capacity of one thousand gallons [3,785.41 liters] or more unless such tank is equipped with a submerged fill pipe during loading filling operations or is a pressure tank as described in subsection 2 8 of section 33-15-12-04 or is fitted with a vapor recovery system as described also defined in subdivision b of subsection 2 8 of section 33-15-12-04.

5- 4. **Volatile organic compounds loading facilities.** No person shall may build or install or permit the building or installation of volatile organic compounds tank car or tank truck loading facilities handling twenty thousand gallons [75,708.24 liters] per day or more unless such facilities are equipped with

submersible filling arms or other vapor emission control systems.

- 6- 5. **Pumps and compressors.** All rotating pumps and compressors handling volatile organic compounds ~~shall~~ must be equipped with mechanical seals or other equipment of equal efficiency for purposes of air pollution control as may be approved by the department.

History: Amended effective October 1, 1987.

General Authority: NDCC 23-25-03, 28-32-02

Law Implemented: NDCC 23-25-03

33-15-07-02. Requirements for organic compounds gas disposal.

1. No person ~~shall~~ may cause or permit the emission of organic compounds gases and vapors, except from an emergency vapor blowdown system or emergency relief system, unless these gases and vapors are burned by flares, or an equally effective control device as approved by the department.
2. Organic compounds gases and vapors which are generated as wastes as the result of storage, oil exploration, development, production, refining, or processing operations and which contain hydrogen sulfide, shall be incinerated, flared, or treated in an equally effective manner before being released to the ambient air. The emissions from all devices designed for incinerating, flaring, or treating waste organic compounds gases and vapors shall result in compliance with the ambient air quality standards.
3. Each flare ~~shall~~ must be equipped and operated with an automatic ignitor or a continuous burning pilot.

History: Amended effective February 1, 1982; October 1, 1987.

General Authority: NDCC 23-25-03, 28-32-02

Law Implemented: NDCC 23-25-03

33-15-10-02. Restrictions on the disposal of surplus pesticides and empty pesticide containers.

1. No person shall dispose of or permit the disposal of surplus pesticides and empty pesticide containers in such a manner as may cause pesticides to become airborne in such quantities that may cause injury or damage to human health, crops, domestic animals, pollinating insects, vegetation, fish, and wildlife.
2. No person shall dispose of or permit the disposal of surplus pesticides and empty pesticide containers by open burning.

3. The disposal of surplus pesticides and empty pesticide containers must be in accordance with rules promulgated pursuant to authorities of the Solid Waste Management and Land Protection Act and the Hazardous Waste Management Act of the North Dakota Century Code.

History: Amended effective October 1, 1987.

General Authority: NDCC 23-25-03, 28-32-02

Law Implemented: NDCC 23-25-03

33-15-11-03. Abatement strategies emission reduction plans.

1. When the department declares an air pollution alert, air pollution warning, or air pollution emergency, any person responsible for the operation of a source of air contaminants as set forth in Table table 7 shall take all actions as required by Table table 7 for such source of air contaminants for the level declared and shall put into effect the preplanned abatement strategies plan for the level declared. The department shall notify the public by means of a public announcement whenever an air pollution alert, air pollution warning, or air pollution emergency has been determined to exist.
2. When the department determines that a specified criteria level has been reached at one or more monitoring sites solely because of emissions from a limited number of sources, the department shall notify such source or sources that the actions set forth in Table table 7 or the preplanned abatement strategies plans are required, insofar as it applies to such source or sources and shall be put into effect until the criteria of the specified level are no longer met.

History: Amended effective October 1, 1987.

General Authority: NDCC 23-25-03, 28-32-02

Law Implemented: NDCC 23-25-03

33-15-11-04. Preplanned abatement strategies plans.

1. Any person responsible for the operation of a source of air contaminants as set forth in Table table 7 shall prepare abatement strategies plans for reducing the emission of air contaminants during periods of an air pollution alert, air pollution warning, and air pollution emergency. Abatement strategies plans shall be designed to reduce or eliminate emissions of air contaminants in accordance with the objectives set forth in Table table 7.
2. Any person responsible for the operation of a source of air contaminants not set forth under subsection 1 shall, when requested by the department, in writing, prepare abatement

strategies plans for reducing the emission of air contaminants during periods of an air pollution alert, air pollution warning, and air pollution emergency. Abatement strategies plans shall be designed to reduce or eliminate emissions of air contaminants in accordance with the objectives set forth in ~~Table~~ table 7.

3. Abatement strategies plans as required under subsections 1 and 2 shall be in writing and identify the sources of air contaminants, the approximate amount of reduction of air contaminants, and a brief description of the manner in which the reduction will be achieved during an air pollution alert, air pollution warning, and air pollution emergency.
4. During a condition of air pollution alert, air pollution warning, and air pollution emergency, abatement strategies plans as required by subsections 1 and 2 shall be made available on the premises to any person authorized to enforce the provisions of applicable rules and regulations.
5. Abatement strategies plans as required by subsections 1 and 2 shall be submitted to the department upon request within thirty days of the receipt of such request; such abatement strategies plans shall be subject to review and approval by the department. If, in the opinion of the department an abatement strategies plan does not effectively carry out the objectives as set forth in ~~Table~~ table 7, the department may disapprove it, state the reasons for disapproval, and order the preparation of an amended abatement strategies plan within the time period specified in the order.

General Authority: NDCC 28-32-02

Law Implemented: NDCC 23-25-02

Table 6.
Air Pollution Episode Criteria

1. Air pollution forecast:

An internal watch by the department shall be actuated by a national weather service advisory that an atmospheric stagnation advisory is in effect or the equivalent local forecast of a stagnant atmospheric condition.

2. Air pollution alert:

The alert level is that concentration of contaminants at which first stage control actions are to begin. An alert will be declared when any one of the following levels is reached at any monitoring site:

SO₂-800 µg/m³ (0.3 ppm), 24-hour average.

Particulate-3-θ CθHs or 375 µg/m³, 24-hour average.

SO₂ and particulate combined-product of SO₂ ppm µg/m³, 24-hour average, and CθHs equal to 0.2 or product of SO₂- µg/m³, 24-hour average, and particulate µg/m³, 24-hour average equal to 65x10³.

CO-17 mg/m³ (15 ppm), 8-hour average.

~~Oxidant~~ Ozone (O₃)-~~200~~ 400 µg/m³ (~~0.1~~ 0.2 ppm), 1-hour average.

NO₂-1,130 µg/m³ (0.6 ppm), 1-hour average; 282 µg/m³ (0.15 ppm), 24-hour average.

and In addition to the levels listed for the above pollutants, meteorological conditions are such ~~the~~ that pollutant concentrations can be expected to remain at the above levels for twelve or more hours or increase, or in the case of ~~oxidants ozone~~, the situation is likely to ~~reoccur~~ recur within the next twenty-four hours unless control actions are taken.

3. Air pollution warning:

The warning level indicates that air quality is continuing to degrade and that additional control actions are necessary. A warning will be declared when any one of the following levels is reached at any monitoring site:

SO₂-1,600 µg/m³ (0.6 ppm), 24-hour average.

Particulate-5-8 ECHs or 625 $\mu\text{g}/\text{m}^3$, 24-hour average.

~~SO₂ and particulate combined-product of SO₂ ppm, 24-~~
hour average and ECHs equal to 0.8 or product of
SO₂ $\mu\text{g}/\text{m}^3$, 24-hour average and particulate $\mu\text{g}/\text{m}^3$, 24-hour
average equal to 261x10³.

CO-34 mg/m^3 (30 ppm), 8-hour average.

~~Oxidant~~ Ozone (O₃)-800 $\mu\text{g}/\text{m}^3$ (0.4 ppm), 1-hour average.

NO₂-2,260 $\mu\text{g}/\text{m}^3$ (1.2 ppm), 1-hour average; 565 $\mu\text{g}/\text{m}^3$ (0.3
ppm), 24-hour average.

and In addition to the levels listed for the above
pollutants, meteorological conditions are such that pollutant
concentrations can be expected to remain at the above levels
for twelve or more hours or increase, or in the case of
oxidants ozone, the situation is likely to ~~reoccur~~ recur
within the next twenty-four hours unless control actions are
taken.

4. Air pollution emergency:

The emergency level indicates that air quality is continuing
to degrade toward a level of significant harm to the health of
persons and that the most stringent control actions are
necessary. An emergency will be declared when any one of the
following levels is reached at any monitoring site:

SO₂-2,100 $\mu\text{g}/\text{m}^3$ (0.8 ppm), 24-hour average.

Particulate-7-8 ECHs or 875 $\mu\text{g}/\text{m}^3$, 24-hour average.

~~SO₂ and particulate combined-product of SO₂ ppm, 24-~~
hour average and ECHs equal to 1.2 or product of
SO₂ $\mu\text{g}/\text{m}^3$, 24-hour average and particulate $\mu\text{g}/\text{m}^3$, 24-hour
average equal to 393x10³.

CO-46 mg/m^3 (40 ppm), 8-hour average.

~~Oxidant~~ Ozone (O₃)-~~1,200~~ 1,000 $\mu\text{g}/\text{m}^3$ (0.6 ppm), 1-hour
average.

NO₂-3,000 $\mu\text{g}/\text{m}^3$ (1.6 ppm), 1-hour average; 750 $\mu\text{g}/\text{m}^3$ (0.4
ppm), 24-hour average.

and In addition to the levels listed for the above pollutants, meteorological conditions are such that this condition pollutant concentrations can be expected to continue remain at the above levels for twelve or more hours or increase, or in the case of oxidants ozone, the situation is likely to reoccur recur within the next twenty-four hours unless control actions are taken.

5. Termination:

Once declared, any status reached by application of these criteria will remain in effect until the criteria for that level are no longer met. At such time, the next lower status will be assumed.

Table 7.

Abatement Strategies Emission Reduction Plans

Air Pollution Alert Level

Part A. General

1. There shall be no open burning by any persons of tree waste, vegetation, refuse, or debris in any form.
2. The use of incinerators for the disposal of any form of solid waste shall be limited to the hours between twelve noon and four p.m.
3. Persons operating fuel-burning equipment which requires boiler lancing or soot blowing shall perform such operations only between the hours of twelve noon and four p.m.
4. Persons operating motor vehicles should eliminate all unnecessary operations.

Part B. Source Curtailment

Any person responsible for the operation of a source of air contaminants listed below shall take all required control actions for this alert level.

Source of Air Contaminants	Control Action
1. Coal or oil-fired electric power generating facilities.	<ol style="list-style-type: none">a. Substantial reduction by utilization of fuels having low ash and sulfur content.b. Maximum utilization of midday (twelve noon to four p.m.) atmospheric turbulence for boiler lancing and soot blowing.c. Substantial reduction by diverting electric power generation to facilities outside of alert area.
2. Coal and oil-fired process steam generating facilities.	<ol style="list-style-type: none">a. Substantial reduction by utilization of fuels having low ash and sulfur

- content.
- b. Maximum utilization of midday (twelve noon to four p.m.) atmospheric turbulence for boiler lancing and soot blowing.
 - c. Substantial reduction of steam load demands consistent with continuing plant operations.
3. Manufacturing industries of the following classifications:
- Primary metals industry.
 - Petroleum refining operations.
 - Chemical industries.
 - Mineral processing industries.
 - Grain ~~industries~~ industry.
 - Paper and allied products.
 - Other energy and fuel facilities.
- a. Substantial reduction of air contaminants from manufacturing operations by curtailing, postponing, or deferring production and all operations.
 - b. Maximum reduction by deferring trade waste disposal operations which emit solid particles, gas vapors or malodorous substances.
 - c. Maximum reduction of heat load demands by processing.
 - d. Maximum utilization of midday (twelve noon to four p.m.) atmospheric turbulence for boiler lancing or soot blowing.

Air Pollution Warning Level

Part A. General

1. There shall be no open burning by any persons of tree waste, vegetation, refuse, or debris in any form.
2. The use of incinerators for the disposal of any form of solid waste or liquid waste shall be prohibited.
3. Persons operating fuel-burning equipment which requires boiler lancing or soot blowing shall perform such operations only between the hours of twelve noon and four p.m.

4. Persons operating motor vehicles must reduce operations by the use of car pools and increased use of public transportation and elimination of unnecessary operation.

Part B. Source Curtailment

Any person responsible for the operation of a source of air contaminants listed below shall take all required control actions for this warning level.

Source of Air Contaminants	Control Action
1. Coal or oil-fired electric power generating facilities.	<ol style="list-style-type: none"> a. Maximum reduction by utilization of fuels having lowest ash and sulfur content. b. Maximum utilization of midday (twelve noon to four p.m.) atmospheric turbulence for boiler lancing and soot blowing. c. Maximum reduction by diverting electric power generation to facilities outside of warning area.
2. Coal and oil-fired process steam generating facilities.	<ol style="list-style-type: none"> a. Maximum reduction by utilization of fuels having the lowest available ash and sulfur content. b. Maximum utilization of midday (twelve noon to four p.m.) atmospheric turbulence for boiler lancing and soot blowing. c. Making ready for use a plan of action to be taken if an emergency develops.
3. Manufacturing industries which require considerable lead time for shutdown including the following classifications:	<ol style="list-style-type: none"> a. Maximum reduction of air contaminants from manufacturing operations by, if necessary, assuming reasonable

Petroleum refining.
Chemical industries.
Primary metals industries.
Glass industries.
Paper and allied products.
Other energy and fuel
facilities.

economic hardships
by postponing production
and allied operation.

- b. Maximum reduction by deferring trade waste disposal operations which emit solid particles, gases, vapors, or malodorous substances.
 - c. Maximum reduction of heat load demands for processing.
 - d. Maximum utilization of midday (twelve noon to four p.m.) atmospheric turbulence for boiler lancing or soot blowing.
4. Manufacturing industries which require relatively short lead times for shut-down including the following classifications:
- Primary metals industries.
 - Chemical industries.
 - Grain industry.
 - Mineral processing industries.
- a. Elimination of air contaminants from manufacturing operations by ceasing, curtailing, postponing, or deferring production and allied operations to the extent possible without causing injury to persons or damage to equipment.
 - b. Elimination of air contaminants from trade waste disposal processes which emit solid particles, gases, vapors, or malodorous substances.
 - c. Maximum reduction of heat load demands for processing.
 - d. Maximum utilization of midday (twelve noon to four p.m.) atmospheric turbulence for boiler lancing or soot blowing.

Air Pollution Emergency Level

Part A. General

1. There shall be no open burning by any persons of tree waste, vegetation, refuse, or debris in any form.
2. The use of incinerators for the disposal of any form of solid or liquid waste shall be prohibited.
3. All places of employment described below shall immediately cease operations:
 - a. Mining and quarrying of nonmetallic minerals.
 - b. All construction work except that which must proceed to avoid emergent physical harm.
 - c. All manufacturing establishments except those required to have in force an air pollution emergency abatement strategies plan.
 - d. All wholesale trade establishments; i.e., places of business primarily engaged in selling merchandise to retailers, or industrial, commercial, institutional or professional users, or to other wholesalers, or acting as agents in buying merchandise for or selling merchandise to such persons or companies, except those engaged in the distribution of drugs, surgical supplies and food.
 - e. All offices of local, county and state government including authorities, joint meetings, and other public bodies excepting such agencies which are determined by the chief administrative officer of local, county, or state government, authorities, joint meetings and other public bodies to be vital for public safety and welfare and the enforcement of the provisions of this order.
 - f. All retail trade establishments except pharmacies, surgical supply distributors, and stores primarily engaged in the sale of food.
 - g. Banks, credit agencies other than banks, securities and commodities brokers, dealers, exchanges and services; offices of insurance carriers, agents and brokers, real estate offices.
 - h. Wholesale and retail laundries, laundry services and cleaning and dyeing establishments; photographic studios; beauty shops, barber shops, shoe repair shops.
 - i. Advertising offices; consumer credit reporting, adjustment and collection agencies; duplicating, addressing,

blueprinting; photocopying, mailing, mailing list and stenographic services; equipment rental services, commercial testing laboratories.

- j. Automobile repair, automobile services, garages.
 - k. Establishments rendering amusement and recreational services including motion picture theaters.
 - l. Elementary and secondary schools, colleges, universities, professional schools, junior colleges, vocational schools, and public and private libraries.
4. All commercial and manufacturing establishments not included in this order will institute such actions as will result in maximum reduction of air contaminants from their operation by ceasing, curtailing, or postponing operations which emit air contaminants to the extent possible without causing injury to persons or damage to equipment.
5. The use of motor vehicles is prohibited except in emergencies with the approval of local police or state highway patrol.

Part B. Source Curtailment

Any person responsible for the operation of a source of air contaminants listed below shall take all required control actions for this emergency level.

Source of Air Contaminants	Control Action
1. Coal or oil-fired electric power generating facilities.	a. Maximum reduction by utilization of fuels having lowest ash and sulfur content.
	b. Maximum utilization of midday (twelve noon to four p.m.) atmospheric turbulence for boiler lancing or soot blowing.
	c. Maximum reduction by diverting electric power generation to facilities outside of emergency area.
2. Coal and oil-fired process steam	a. Maximum reduction by reducing heat and steam

generating facilities.

demands to absolute necessities consistent with preventing equipment damage.

- b. Maximum utilization of midday (twelve noon to four p.m.) atmospheric turbulence for boiler lancing and soot blowing.
- c. Taking the action called for in the abatement strategies plan for the emergency level.

3. Manufacturing industries of the following classifications:
- Primary metals industries.
 - Petroleum refining.
 - Chemical industries.
 - Mineral processing industries.
 - Grain industry.
 - Paper and allied products.
 - Other energy and fuel facilities.

- a. Elimination of air contaminants from manufacturing operations by ceasing, curtailing, postponing, or deferring production and allied operations to the extent possible without causing injury to persons or damage to equipment.
- b. Elimination of air contaminants from trade waste disposal processes which emit solid particles, gases, vapors, or malodorous substances.
- c. Maximum reduction of heat load demands for processing.
- d. Maximum utilization of midday (twelve noon to four p.m.) atmospheric turbulence for boiler lancing or soot blowing.

33-15-12-01. General provisions.

1. **Applicability.** The provisions of this chapter apply to the owner or operator of any stationary source whose construction or modification is commenced after the effective date of each section and subsection. These standards shall be applied in conjunction with the procedure set out in chapter 33-15-14.

2. **Definitions.** As used in this chapter, all terms not defined herein shall have the meaning given them in ~~the~~ North Dakota Century Code chapter 23-25 or in section 33-15-01-04.
- a. "Administrator" means the administrator of the United States environmental protection agency or his authorized representative.
 - b. "Affected facility" means, with reference to a stationary source, any apparatus to which a standard is applicable.
 - ~~b-~~ c. "Alternative method" means any method of sampling and analyzing for an air pollutant which is not a reference or equivalent method but which has been demonstrated to the department's satisfaction, in specific cases, to produce results adequate for the department's determination of compliance.
 - ~~e-~~ d. "Capital expenditure" means an expenditure for a physical or operational change to an existing facility which exceeds the product of the applicable "annual asset guideline repair allowance percentage" specified in the latest edition of Internal Revenue Service Publication 534 and the existing facility's basis, as defined by section 1012 of the Internal Revenue Code. However, the total expenditure for a physical or operational change to an existing facility must not be reduced by any "excluded additions" as defined in Internal Revenue Service Publication 534, as would be done for tax purposes.
 - ~~d-~~ e. "Commenced" as applied to construction of a stationary new source means that ~~the~~ an owner or operator has obtained all necessary construction permits required by state air pollution regulations and either has-
 - (1) Begun, or caused to begin a continuous program of physical onsite construction of the source; or
 - (2) Entered into binding agreements or contractual obligations, which cannot be canceled or modified without substantial loss to the owner or operator, to undertake a program of construction of the source to be completed within a reasonable time undertaken a continuous program of construction or modification or that an owner or operator has entered into a contractual obligation to undertake and complete, within a reasonable time, a continuous program of construction or modification.

- e- f. "Construction" means fabrication, erection, or installation of an affected facility.
- f- g. "Continuous monitoring system" means the total equipment, required under the emission monitoring divisions in applicable subsections, used to sample and condition (if applicable), to analyze, and to provide a permanent record of emissions or process parameters.
- g- h. "Equivalent method" means any method of sampling and analyzing for an air pollutant which has been demonstrated to the department's satisfaction to have a consistent and quantitatively known relationship to the reference method, under specified conditions.
- h- i. "Existing facility" means, with reference to a stationary source, any apparatus of the type for which a standard is promulgated in this chapter and the construction or modification of which was commenced before the effective date of that standard; or any apparatus which could be altered in such a way as to be of that type.
- i- j. "Isokinetic sampling" means sampling in which the linear velocity of the gas entering the sampling nozzle is equal to that of the undisturbed gas stream at the sample point.
- j- k. "Malfunction" means any sudden and unavoidable failure of air pollution control equipment or process equipment or of a process to operate in a normal or usual manner. Failures that are caused entirely or in part by poor maintenance, careless operation, or any other preventable upset condition or preventable equipment breakdown shall not be considered malfunctions.
- k- l. "Modification" means any physical change in, or change in the method of operation of, an existing facility which increases the amount of any air pollutant (to which a standard applies) emitted into the atmosphere by that facility or which results in the emission of any air pollutant (to which a standard applies) into the atmosphere not previously emitted.
- l- m. "Monitoring device" means the total equipment, required under the monitoring of operations divisions in applicable subsections, used to measure and record (if applicable) process parameters.
- n. "New source" means any stationary source, the construction or modification of which is commenced after the effective date of a standard of performance in this chapter which will be applicable to such source.

- m- o. "Nitrogen oxides" means all oxides of nitrogen except nitrous oxide, as measured by test methods set forth in this chapter.
- n- p. "One-hour period" means any sixty-minute period commencing on the hour.
- o- q. "Opacity" means the degree to which emissions reduce the transmission of light and obscure the view of an object in the background.
- p- r. "Owner or operator" means any person who owns, leases, operates, controls, or supervises an affected facility or a stationary source of which an affected facility is a part.
- q- s. "Particulate matter" means any finely divided solid or liquid material, other than uncombined water, as measured by ~~Method~~ method 5 of ~~Appendix~~ appendix A to this chapter or an equivalent or alternative method.
- r- t. "Proportional sampling" means sampling at a rate that produces a constant ratio of sampling rate to stack gas flow rate.
- s- u. "Reference method" means any method of sampling and analyzing for an air pollutant as described in ~~Appendix~~ appendix A to this chapter.
- t- v. "Run" means the net period of time during which an emission sample is collected. Unless otherwise specified, a run may be either intermittent or continuous within the limits of good engineering practice.
- u- w. "Shutdown" means the cessation of operation of an affected facility for any purpose.
- v- x. "Six-minute period" means any one of the ten equal parts of a one-hour period.
- w- y. "Standard" means a standard of performance promulgated under this chapter.
- x- z. "Standard conditions" means a temperature of two hundred ninety-three degrees Kelvin [68 degrees Fahrenheit] and a pressure of one hundred one and three-tenths kilopascals [29.92 inches] of mercury.
- y- aa. "Startup" means the setting in operation of an affected facility for any purpose.
- z- bb. "Stationary source" means any building, structure, facility, or installation which emits or may emit any air

pollutant and which contains any one or combination of the following-

- (1) Affected facilities-
- (2) Existing facilities-
- (3) Facilities of the type for which no standards have been promulgated in this chapter.

cc. "Volatile organic compound" means any organic compound which participates in atmospheric photochemical reactions; or which is measured by a reference method, an equivalent method, an alternative method, or which is determined by procedures specified under any subsection.

3. **Abbreviations.** The abbreviations used in this chapter have the following meanings:

A - ampere

A.S.T.M. - American society for testing and materials

Btu - British thermal unit

°C - degree Celsius (centigrade)

cal - calorie

CdS - cadmium sulfide

cfm - cubic feet per minute

cu ft - cubic feet

CO - carbon monoxide

CO₂ - carbon dioxide

dcf - dry cubic feet

dcm - dry cubic meter

dscm - dry cubic meter at standard conditions

dscf - dry cubic feet at standard conditions

eq - equivalents

°F - degree Fahrenheit

ft - feet

g - gram

gal - gallon

g eq - gram equivalents

gr - grain

hr - hour

HCl - hydrochloric acid

Hg - mercury

H₂O - water

H₂S - hydrogen sulfide

H₂SO₄ - sulfuric acid

Hz - hertz

in. - inch

j - joule

°K - degree Kelvin

k - 1,000

kg - kilogram

l - liter
 lpm - liter per minute
 lb - pound
 m - meter
 m^3 - cubic meter
 meq - milliequivalent
Mg - megagram - 10^6 gram
 min - minute
 mg - milligram
 ml - milliliter
 mm - millimeter
 mol - mole
 mol. wt. - molecular weight
~~mV - millivolt~~
 N_2 - nitrogen
 N - newton
 ng - nanogram - 10^{-9} gram
 nm - nanometer - 10^{-9} meter
 NO - nitric oxide
 NO_2 - nitrogen dioxide
 NO_x - nitrogen oxides
 O_2 - oxygen
 Pa - pascal
 ppb - parts per billion
 ppm - parts per million
 psia - pounds per square inch absolute
 psig - pounds per square inch gauge
 $^{\circ}R$ - degree Rankine
s - at standard conditions
 sec - second
 scf - cubic feet at standard conditions
 scfh - cubic feet per hour at standard conditions
 scm - cubic meter at standard conditions
 SO_2 - sulfur dioxide
 SO_3 - sulfur trioxide
 SO_x - sulfur oxides
 sq ft - square feet
 std - at standard conditions
 ug - microgram - 10^{-6} gram
 V - volt
 W - watt
 Ω - ohm

4. Determination of construction or modification.

- a. When requested to do so by an owner or operator, the department will make a determination of whether action taken or intended to be taken by such owner or operator constitutes construction (including reconstruction) or modification or the commencement thereof within the meaning of this section.
- b. The department will respond to any request for a determination under subdivision a within thirty days of receipt of such request.

5. Review of plans.

- a. When requested to do so by an owner or operator, the department will review plans for construction or modification for the purpose of providing technical advice to the owner or operator.
- b. (1) A separate request shall be submitted for each construction or modification project.
(2) Each request shall identify the location of such project, and be accompanied by technical information describing the proposed nature, size, design, and method of operation of each affected facility involved in such project, including information on any equipment to be used for measurement or control of emissions.
- c. ~~Nothing in this subsection or subsection 4 nor any action taken by the department pursuant to this subsection or subsection 4 shall:~~
 - ~~(1) Prevent the department from making any such determination described above upon its own initiative.~~
 - ~~(2) Prevent the department from making any subsequent redetermination.~~
 - ~~(3) Relieve an owner or operator of legal responsibility for compliance with any provision of this chapter or of any applicable federal or local requirement.~~
 - ~~(4) Prevent the department from implementing or enforcing any provision of this chapter or taking any other action authorized by law~~
Neither a request for plans review nor advice furnished by the department in response to such request shall (1) relieve an owner or operator of

legal responsibility for compliance with any provision of this part or of any applicable federal or local requirement, or (2) prevent the department from implementing or enforcing any provision of this article.

6. Notification and recordkeeping.

- a. Any owner or operator subject to the provisions of this chapter shall furnish the department written notification as follows:
- (1) A notification of the date construction (or reconstruction as defined under subsection 13) of an affected facility is commenced postmarked no later than thirty days after such date. This requirement shall not apply in the case of mass-produced facilities which are purchased in completed form.
 - (2) A notification of the anticipated date of initial startup of an affected facility not more than sixty days or less than thirty days prior to such date.
 - (3) A notification of the actual date of initial startup of an affected facility within fifteen days after such date.
 - (4) A notification of any physical or operational change to an existing facility which may increase the emission rate of any pollutant to which a standard applies, unless that change is specifically exempted under an applicable section or in subdivision e of subsection 12 ~~and the exemption is not denied under paragraph 4 of subdivision d of subsection 12~~. This notice shall be postmarked sixty days or as soon as practicable before the change is commenced and shall include information describing the precise nature of the change, present and proposed emission control systems, productive capacity of the facility before and after the change, and the expected completion date of the change. The department may request additional relevant information subsequent to this notice.
 - (5) A notification of the date upon which demonstration of the continuous monitoring system performance commences in accordance with subdivision c of subsection 11. Notification shall be postmarked not less than thirty days prior to such date.
 - (6) A notification of the anticipated date for conducting the opacity observations required by paragraph 1 of subdivision e of subsection 9. The notification must

include, if appropriate, a request for the department to provide a visible emissions reader during a performance test. The notification must be postmarked not less than thirty days prior to such date.

- b. Any owner or operator subject to the provisions of this chapter shall maintain records of the occurrence and duration of any startup, shutdown, or malfunction in the operation of an affected facility; any malfunction of the air pollution control equipment; or any periods during which a continuous monitoring system or monitoring device is inoperative.
- c. Each owner or operator required to install a continuous monitoring system shall submit a written report of excess emissions (as defined in applicable subsections) to the department for every calendar quarter. All quarterly reports shall be postmarked by the thirtieth day following the end of each calendar quarter and shall include the following information:
 - (1) The magnitude of excess emissions computed in accordance with subdivision h of subsection 11, any conversion factor or factors used, and the date and time of commencement and completion of each time period of excess emissions.
 - (2) Specific identification of each period of excess emissions that occurs during startups, shutdowns, and malfunctions of the affected facility. The nature and cause of any malfunction (if known), the corrective action taken or preventative measures adopted.
 - (3) The date and time identifying each period during which the continuous monitoring system was inoperative except for zero and span checks and the nature of the system repairs or adjustments.
 - (4) When no excess emissions have occurred or the continuous monitoring systems have not been inoperative, repaired, or adjusted, such information shall be stated in the report.
- d. Any owner or operator subject to the provisions of this chapter shall maintain a file of all measurements, including continuous monitoring system, monitoring device, and performance testing measurements; all continuous monitoring system performance evaluations; all continuous monitoring system or monitoring device calibration checks; adjustments and maintenance performed on these systems or devices; and all other information required by this

chapter recorded in a permanent form suitable for inspection. The file shall be retained for at least two years following the date of such measurements, maintenance, reports, and records.

e. Individual sections of this chapter may include specific provisions which clarify or make more inapplicable the provisions set forth in this subsection.

7. Performance tests.

- a. Within sixty days after achieving the maximum production rate at which the affected facility will be operated, but not later than one hundred eighty days after initial startup of such facility, and at such other times as may be required by the department, the owner or operator of such facility shall conduct performance tests and furnish the department a written report of the results of such performance tests. The period during which performance tests are conducted shall be a period of ~~trial~~ operation pursuant to a permit to construct, and shall not be construed as allowing regular, commercial operation of the permitted facility.
- b. Performance tests shall be conducted and data reduced in accordance with the test methods and procedures contained in each applicable subsection of section 33-15-12-04, unless the department ~~(1)~~ specifies or approves, in specific cases, the use of a reference method with minor changes in methodology, or ~~(2)~~ approves the department and administrator: (1) approve the use of an equivalent method, or (3) approves (2) approve the use of an alternative method the results of which it has determined to be adequate for indicating whether a specific source is in compliance, or ~~(4)~~ waives (3) waive the requirement for performance tests because the owner or operator of a source has demonstrated by other means to the department's satisfaction that the affected facility is in compliance with the standard. Nothing in this subdivision may be construed to abrogate the department's authority to require testing.
- c. Performance tests shall be conducted under such conditions as the department shall specify to the plant operator based on representative performance of the affected facility. The owner or operator shall make available to the department such records as may be necessary to determine the conditions for the performance tests. Operations during periods of startup, shutdown, and malfunction shall not constitute representative conditions for the purpose of a performance test nor shall emissions in excess of the level of the applicable emission limit during periods of startup, shutdown, and malfunction be

considered a violation of the applicable emission limit unless otherwise specified in the applicable standard.

- d. The owner or operator of an affected facility shall provide the department thirty days prior notice of the performance test, except as specified under other chapters, to afford the department the opportunity to have an observer present.
- e. The owner or operator of an affected facility shall provide, or cause to be provided, performance testing facilities as follows:
 - (1) Sampling ports adequate for test methods applicable to such facility.
 - (2) Safe sampling platform or platforms.
 - (3) Safe access to sampling platform or platforms.
 - (4) Utilities for sampling and testing equipment.
- f. Each Unless otherwise specified in an applicable subsection, each performance test shall consist of three separate runs using the applicable test method. Each run shall be conducted for the time and under the conditions specified in the applicable standard. For the purpose of determining compliance with an applicable standard, the arithmetic mean of results of the three runs shall apply. In the event that a sample is accidentally lost or conditions occur in which one of the three runs must be discontinued because of forced shutdown, failure of an irreplaceable portion of the sample train, extreme meteorological conditions, or other circumstances beyond the owner or operator's control, compliance may, upon the department's approval, be determined using the arithmetic mean of the results of the two other runs, or the department may require a new performance test.

8. Availability of information.

- a. Emission data provided to, or otherwise obtained by, the department in accordance with the provisions of this chapter shall be available to the public at the department's offices.
- b. As provided in subdivision a, any records, reports, or information provided to, or otherwise obtained by, the department in accordance with the provisions of this chapter shall be available to the public, except that (1) upon a showing satisfactory to the department by any person that such records, reports, or information, or particular part thereof (other than emission data), if

made public, would divulge methods or processes entitled to protection as trade secrets of such person, the department shall consider such records, reports, or information, or particular part thereof, confidential in accordance with the purposes of section 1905 of title 18 of the United States Code, except that such records, reports, or information, or particular part thereof considered confidential, may be disclosed to other officers, employees, or authorized representatives of the department and the United States concerned with carrying out the provisions of this chapter or when relevant in any proceeding under this chapter; and (2) information received by the department solely for the purposes of subsection 4 and subdivisions a and b of subsection 5 shall not be disclosed by the department if it is identified by the owner or operator and found by the department to be a trade secret or confidential, commercial, or financial information.

9. Compliance with standards and maintenance requirements.

a. Compliance with standards in this chapter, other than opacity standards, shall be determined only by performance tests established by subsection 7, unless otherwise specified in the applicable standard.

b. Compliance with opacity standards in this chapter shall be determined by conducting observations in accordance with reference method 9 in appendix A of this chapter or any alternative method that is approved by the department and administrator. Opacity readings of portions of plumes which contain condensed, uncombined water vapor shall not be used for purposes of determining compliance with opacity standards. The results of continuous monitoring by transmissometer which indicate that the opacity at the time visual observations were made was not in excess of the standard are probative but not conclusive evidence of the actual opacity of an emission, provided, that the source shall meet the burden of proving that the instrument used meets (at the time of the alleged violation) Performance Specification 1 in Appendix B of this chapter, has been properly maintained and (at the time of the alleged violation) calibrated, and that the resulting data have not been tampered with in any way. For purposes of determining initial compliance, the minimum total time of observations shall be three hours (thirty six-minute averages) for the performance test or other set of observations (meaning those fugitive-type emission sources subject only to an opacity standard). Following initial compliance, the minimum period of time allowed for

determining compliance with the opacity standard using method 9 shall be one six-minute period.

- c. The opacity standards set forth in this chapter shall apply at all times except during periods of startup, shutdown, malfunction, and as otherwise provided in the applicable standard.
- d. At all times, including periods of startup, shutdown, and malfunction, owners and operators shall, to the extent practicable, maintain and operate any affected facility including associated air pollution control equipment in a manner consistent with good air pollution control practice for minimizing emissions. Determination of whether acceptable operating and maintenance procedures are being used will be based on information available to the department which may include, but is not limited to, monitoring results, opacity observations, review of operating and maintenance procedures, and inspection of the source.
- e. (1) **An owner or operator of an affected facility may request the department to determine opacity of emissions from the affected facility during the initial performance tests required by subsection 7.** For the purpose of demonstrating initial compliance, opacity observations must be conducted concurrently with the initial performance test required in subsection 7, unless one of the following conditions apply. If no performance test under subsection 7 is required, then opacity observations must be conducted within sixty days after achieving the maximum production rate at which the affected facility will be operated but no later than one hundred eighty days after initial startup of the facility. If visibility or other conditions prevent the opacity observations from being conducted concurrently with the initial performance test required under subsection 7, the source owner or operator shall reschedule the opacity observations as soon after the initial performance test as possible, but not later than thirty days thereafter, and shall advise the department of the rescheduled date. In these cases, the thirty-day prior notification to the department required in paragraph 6 of subdivision a of subsection 6 shall be waived. The rescheduled opacity observations must be conducted (to the extent possible) under the same operating conditions that existed during the initial performance test conducted under subsection 7. The visible emissions observer shall determine whether visibility or other conditions prevent the opacity observations from being made concurrently with the

initial performance test in accordance with procedures contained in reference method 9 of appendix B of this chapter. Opacity readings of portions of plumes which contain condensed, uncombined water vapor may not be used for purposes of determining compliance with opacity standards. The owner or operator of an affected facility shall make available, upon request by the department, such records as may be necessary to determine the conditions under which the visual observations were made and shall provide evidence indicating proof of current visible observer emission certification. The results of continuous monitoring by transmissometer which indicate that the opacity at the time visual observations were made was not in excess of the standard are probative but not conclusive evidence of the actual opacity of an emission, provided that the source shall meet the burden of proving that the instrument used meets (at the time of the alleged violation) performance specification 1 in appendix B of this chapter, has been properly maintained and (at the time of the alleged violation) calibrated, and that the resulting data have not been tampered with in any way.

- (2) Upon receipt from such owner or operator of the written report of the results of the performance tests required by subsection 7, the department will make a determination concerning compliance with opacity and other applicable standards. If the department determines that an affected facility is in compliance with all applicable standards for which performance tests are conducted in accordance with subsection 7 but during the time such performance tests are being conducted fails to meet any applicable opacity standard, it shall notify the owner or operator and advise the owner or operator that the owner or operator may petition the department within ten days of receipt of notification to make appropriate adjustment to the opacity standard for the affected facility. Except as provided in paragraph 3 of this subdivision, the owner or operator of an affected facility to which an opacity standard in this chapter applies shall conduct opacity observations in accordance with subdivision b of this section, shall record the opacity of emissions, and shall report to the department the opacity results along with the results of the initial performance test required under subsection 7. The inability of an owner or operator to secure a visible emissions

observer may not be considered a reason for not conducting the opacity observations concurrent with the initial performance test.

- (3) The owner or operator of an affected facility to which an opacity standard in this chapter applies may request the department to determine and to record the opacity of emissions from the affected facility during the initial performance test and at such times as may be required. The owner or operator of the affected facility shall report the opacity results. Any request to the department to determine and to record the opacity of emissions from an affected facility must be included in the notification required in paragraph 6 of subdivision a of subsection 6. If, for some reason, the department cannot determine and record the opacity of emissions from the affected facility during the performance test, then the provisions of paragraph 1 of subdivision e of this subsection shall apply.
- (4) An owner or operator of an affected facility using a continuous opacity monitor (transmissometer) shall record the monitoring data produced during the initial performance test required by subsection 7 shall furnish the department a written report of the monitoring results along with method 9 and subsection 7 performance test results.
- (5) Upon receipt from an owner or operator of the written reports of the results of the performance tests required by subsection 7 the opacity observation results and observer certification required by paragraph 1 and the continuous opacity monitoring results, if applicable, the department will make a finding concerning compliance with opacity and other applicable standards. If the department finds that an affected facility is in compliance with all applicable standards for which performance tests are conducted in accordance with subsection 7 but during the time such performance tests are being conducted fails to meet any applicable opacity standard, it shall notify the owner or operator and advise him that he may petition the department and administrator within ten days of receipt of notification to make appropriate adjustment to the opacity standards for the affected facility.
- (6) The department and administrator will grant such a petition upon a demonstration by the owner or operator that the affected facility and associated air pollution control equipment were operated and maintained in a manner to minimize the opacity of

emissions during the performance tests; that the performance tests were performed under the conditions established by the department; and that the affected facility and associated air pollution control equipment were incapable of being adjusted or operated to meet the applicable opacity standard.

(4) (7) The department and administrator will establish an opacity standard for the affected facility meeting the above requirements at a level at which the source will be able, as indicated by the performance and opacity tests, to meet the opacity standard at all times during which the source is meeting the mass or concentration emission standard. The department and administrator will then promulgate the new opacity standard for such facility.

10. **Circumvention.** No owner or operator subject to the provisions of this chapter shall build, erect, install, or use any article, machine, equipment, or process, the use of which conceals an emission which would otherwise constitute a violation of an applicable standard. Such concealment includes, but is not limited to, the use of gaseous diluents to achieve compliance with an opacity standard or with a standard which is based on the concentration of a pollutant in the gases discharged to the atmosphere.

11. **Monitoring requirements.**

a. For the purposes of this subsection, all continuous monitoring systems required under applicable subsections shall be subject to the provisions of this subsection, ~~unless:~~

(1) ~~The continuous monitoring system is subject to the provisions of paragraphs 2 and 3 of subdivision e7, or~~

(2) ~~Otherwise specified in an applicable subsection or by the department upon promulgation of performance specifications for continuous monitoring systems under appendix B to this chapter, unless otherwise specified in an applicable subsection or by the department.~~

b. All continuous monitoring systems and monitoring devices ~~shall~~ must be installed and operational prior to conducting performance tests under subsection 7. Verification of operational status shall, as a minimum, ~~consist of the following:~~

(1) ~~For continuous monitoring systems referenced in paragraph 1 of subdivision e7~~

completion of the conditioning period specified by applicable requirements in Appendix B-

(2) For continuous monitoring systems referenced in paragraph 2 of subdivision e, completion of seven days of operation-

(3) For monitoring devices referenced in applicable subsections, completion of the manufacturer's written requirements or recommendations for checking the operation or calibration of the device include completion of the manufacturer's written requirements or recommendations for installation, operation, and calibration of the device.

c. During any performance tests required under subsection 7 or within thirty days thereafter and at such other times as may be required by the department, the owner or operator of any affected facility shall conduct continuous monitoring system performance evaluations and furnish the department within sixty days thereof two or, upon request, more copies of a written report of the results of such tests. It shall be

demonstrated that the continuous opacity monitoring system meets the specifications in performance specification 1 in appendix B of this chapter before the performance test required under subsection 7 is conducted. Other continuous emission monitoring systems must be evaluated during any performance tests required under subsection 7 or within thirty days thereafter. The owner or operator of an affected facility shall conduct continuous emission monitoring system performance evaluations at such other times as may be required by the department, and shall furnish the department within sixty days thereof two or, upon request, more copies of a written report of the results of all tests referenced in this subdivision. These continuous monitoring system performance evaluations shall must be conducted in accordance with the following specifications requirements and procedures contained in the applicable performance specification of appendix B. An alternative to the relative accuracy test specified in performance specification 2 of appendix B may be requested as follows:

(1) Continuous monitoring systems listed within this subdivision except as provided in paragraph 2 shall be evaluated in accordance with the requirements and procedures contained in the applicable performance specification of Appendix B as follows-

- (a) Continuous monitoring systems for measuring opacity of emissions shall comply with Performance Specification 1-
- (b) Continuous monitoring systems for measuring nitrogen oxides emissions shall comply with Performance Specification 2-
- (c) Continuous monitoring systems for measuring sulfur dioxide emissions shall comply with Performance Specification 2-
- (d) Continuous monitoring systems for measuring the oxygen content or carbon dioxide content of effluent gases shall comply with Performance Specification 3-

An alternative to the reference method tests for determining relative accuracy is available for sources with emission rates demonstrated to be less than fifty percent of the applicable standard. A source owner or operator may petition the department and administrator to waive the relative accuracy test in section 7 of performance specification 2 and substitute the procedures in section 10 if the results of a performance test conducted according to the requirements in subsection 7 or other tests performed following the criteria in subsection 7 demonstrate that the emission rate of the pollutant of interest in the units of the applicable standard is less than fifty percent of the applicable standard. For sources subject to standards expressed as control efficiency levels, a source owner or operator may petition the administrator and department to waive the relative accuracy test and substitute the procedures in section 10 of performance specification 2 if the control device exhaust emission rate is less than fifty percent and the level needed to meet the control efficiency requirement. The alternative procedures do not apply if the continuous emission monitoring system is used to determine compliance continuously with the applicable standard. The petition to waive the relative accuracy test must include a detailed description of the procedures to be applied. Included must be location and procedure for conducting the alternative, the concentration or response levels of the alternative relative accuracy materials, and the other equipment checks

included in the alternative procedure. The administrator and department will review the petition for completeness and applicability. The determination to grant a waiver will depend on the intended use of the continuous emission monitoring system data (e.g., data collection purposes other than new source performance standards) and may require specifications more stringent than in performance specification 2 (e.g., the applicable emission limit is more stringent than new source performance standards).

- (2) An owner or operator who, prior to September 11, 1974, entered into a binding contractual obligation to purchase specific continuous monitoring system components except as referenced by subparagraph e shall comply with the following requirements:
- (a) Continuous monitoring systems for measuring opacity of emissions shall be capable of measuring emission levels within \pm twenty percent with a confidence level of ninety-five percent. The Calibration Error Test and associated calculation procedures set forth in Performance Specification 1 of Appendix B shall be used for demonstrating compliance with this specification.
 - (b) Continuous monitoring systems for measurement of nitrogen oxides or sulfur dioxide shall be capable of measuring emission levels within \pm twenty percent with a confidence level of ninety-five percent. The Calibration Error Test, the Field Test for Accuracy (Relative), and associated operating and calculation procedures set forth in Performance Specification 2 of Appendix B shall be used for demonstrating compliance with this specification.
 - (c) Owners or operators of all continuous monitoring systems installed on an affected facility prior to the effective date of this regulation are not required to conduct tests under subparagraph a or subparagraph b, or both, unless requested by the department. The waiver of a continuous emission monitoring system relative accuracy test will be reviewed and may

be rescinded at such time following successful completion of the alternative relative accuracy procedure that the continuous emission monitoring system data indicate the source emissions approaching the level of the applicable standard. The criterion for reviewing the waiver is the collection of continuous emission monitoring system data showing that emissions have exceeded seventy percent of the applicable standard for seven consecutive averaging periods as specified by the applicable regulations. For sources subject to standards expressed as control efficiency levels, the criterion for reviewing the waiver is the collection of continuous emission monitoring system data showing that exhausted emissions have exceeded seventy percent of the level needed to meet the control efficiency requirement for seven consecutive averaging periods as specified by the applicable regulations. It is the responsibility of the source operation to maintain records and determine the level of emissions relative to the criterion of this waiver of relative accuracy testing. If this criterion is exceeded, the owner or operator must notify the administrator and department within ten days of such occurrence and include a description of the nature and cause of the increasing emissions. The administrator and department will review the notification and may rescind the waiver and require the owner or operator to conduct a relative accuracy test of the performance specification.

(3) All continuous monitoring systems referenced by paragraph 2 shall be upgraded or replaced (if necessary) with new continuous monitoring systems, and such improved systems shall be demonstrated to comply with applicable performance specifications under subparagraph a of paragraph 1 by September 11, 1979.

- d. (1) Owners and operators of all continuous monitoring systems installed in accordance with the provisions of this chapter shall check the zero (or low-level value between zero and twenty percent of span value) and span drift (fifty to one hundred percent of span value) calibration drifts at least once daily in accordance with the method prescribed by the manufacturer of such systems unless the manufacturer recommends adjustments at

shorter intervals, in which case such recommendations shall be followed a written procedure. The zero and span shall, as a minimum, be adjusted whenever the twenty-four-hour zero drift or twenty-four-hour calibration span drift exceeds two times the limits of the applicable performance specifications in Appendix appendix B are exceeded. The system must allow the amount of excess zero and span drift measured at the twenty-four-hour interval checks to be recorded and quantified whenever specified. For continuous monitoring systems measuring opacity of emissions, the optical surfaces exposed to the effluent gases shall be cleaned prior to performing the zero or span drift adjustments except that for systems using automatic zero adjustments, the optical surfaces shall be cleaned when the cumulative automatic zero compensation exceeds four percent opacity. Unless otherwise approved by the department, the following procedures, as applicable, shall be followed:

- (1) For extractive continuous monitoring systems measuring gases, minimum procedures shall include introducing applicable zero and span gas mixtures into the measurement system as near the probe as is practical. Span and zero gases certified by their manufacturer to be traceable to national bureau of standards reference gases shall be used whenever these reference gases are available. The span and zero gas mixtures shall be the same composition as specified in Appendix B of this chapter. Every six months from date of manufacture, span and zero gases shall be reanalyzed by conducting triplicate analyses with Reference Methods 6 for sulfur dioxide, 7 for oxides of nitrogen, and 3 for oxygen and carbon dioxide, respectively. The gases may be analyzed at less frequent intervals if longer shelf lives are guaranteed by the manufacturer.
- (2) For nonextractive continuous monitoring systems measuring gases, minimum procedures shall include upscale check or checks using a certified calibration gas cell or test cell which is functionally equivalent to a known gas concentration. The zero check may be performed by computing the zero value from upscale measurements or by mechanically producing a zero condition.

(3) For continuous monitoring systems measuring opacity of emissions, minimum procedures shall include a method for producing a simulated zero opacity condition and an upscale (span) opacity condition using a certified neutral density filter or other related technique to produce a known obscuration of the light beam. Such procedures shall provide a system check of the analyzer internal optical surfaces and all electronic circuitry including the lamp and photodetector assembly.

e. Except for system breakdowns, repairs, calibration checks, and zero and span adjustments required under subdivision d, all continuous monitoring systems shall be in continuous operation and shall meet minimum frequency of operation requirements as follows:

(1) All continuous monitoring systems referenced by ~~paragraphs 1 and 2 of~~ subdivision c for measuring opacity of emissions shall complete a minimum of one cycle of operation (sampling, analyzing, and data recording) for each successive ten-second period and one cycle of data recording for each successive six-minute period.

(2) All continuous monitoring systems referenced by ~~paragraph 1 of~~ subdivision c for measuring ~~oxides of nitrogen, sulfur dioxide, carbon dioxide, or oxygen~~ emissions, except opacity, shall complete a minimum of one cycle of operation (sampling, analyzing, and data recording) for each successive fifteen-minute period.

~~(3) All continuous monitoring systems referenced by paragraph 2 of subdivision e, except opacity, shall complete a minimum of one cycle of operation (sampling, analyzing, and data recording) for each successive one-hour period.~~

f. All continuous monitoring systems or monitoring devices shall be installed such that representative measurements of emissions or process parameters from the affected facility are obtained. Additional procedures for location of continuous monitoring systems contained in the applicable Performance Specifications performance specifications of Appendix B of this chapter shall be used.

g. When the effluents from a single affected facility or two or more affected facilities subject to the same emission standards are combined before being released to the atmosphere, the owner or operator may install applicable

continuous monitoring systems on each effluent or on the combined effluent. When the affected facilities are not subject to the same emission standards, separate continuous monitoring systems shall be installed on each effluent. When the effluent from one affected facility is released to the atmosphere through more than one point, the owner or operator shall install applicable continuous monitoring systems on each separate effluent unless the installation of fewer systems is approved by the department. When more than one continuous monitoring system is used to measure emissions from one affected facility (e.g. multiple breechings, multiple outlets), the owner or operator shall report the results as required from each continuous monitoring system.

- h. Owners or operators of all continuous monitoring systems for measurement of opacity shall reduce all data to six-minute averages and for continuous monitoring systems other than opacity to one-hour averages for time periods under subdivisions v and n of defined in subsection 27 respectively. Six-minute opacity averages shall be calculated from ~~twenty-four~~ thirty-six or more data points equally spaced over each six-minute period. For continuous monitoring systems other than opacity, one-hour averages shall be computed from four or more data points equally spaced over each one-hour period. Data recorded during periods of continuous monitoring system breakdowns, repairs, calibration checks, and zero and span adjustments shall not be included in the data averages computed under this subdivision. An arithmetic or integrated average of all data may be used. The data output of all continuous monitoring systems may be recorded in reduced or nonreduced form, (e.g., parts per million pollutant and percent oxygen or pounds per million ~~Btu~~ British thermal units of pollutant). All excess emissions shall be converted into units of the standard using the applicable conversion procedures specified in subsections. After conversion into units of the standard, the data may be rounded to the same number of significant digits used in applicable subsections to specify the ~~applicable standard~~ emission limit (e.g., rounded to the nearest one percent opacity).

- (1) After receipt and consideration of written application, the department may approve alternatives to any monitoring procedures or requirements of this chapter including, but not limited to the following:
- (a) Alternative monitoring requirements when installation of a continuous monitoring system or monitoring device specified by this regulation would not provide accurate measurements due to liquid water or other

interferences caused by substances with the effluent gases.

- (b) Alternative monitoring requirements when the affected facility is infrequently operated.
- (c) Alternative monitoring requirements to accommodate continuous monitoring systems that require additional measurements to correct for stack moisture conditions.
- (d) Alternative locations for installing continuous monitoring systems or monitoring devices when the owner or operator can demonstrate that installation at alternate locations will enable accurate and representative measurements.
- (e) Alternative methods of converting pollutant concentration measurements to units of the standards.
- (f) Alternative procedures for performing daily checks of zero and span drift that do not involve use of span gases or test cells.
- (g) Alternatives to the American society for testing and materials test methods or sampling procedures specified by any subsection.
- (h) Alternative continuous monitoring systems that do not meet the design or performance requirements in Performance Specification performance specification 1, Appendix appendix B, but adequately demonstrate a definite and consistent relationship between its measurements and the measurements of opacity by a system complying with the requirements in Performance Specification performance specification 1. The department may require that such demonstration be performed for each affected facility.
- (i) Alternative monitoring requirements when the effluent from a single affected facility or the combined effluent from two or more affected facilities are released to the atmosphere through more than one point.

12. Modification.

- a. Except as provided under subdivisions d, e and f of this subsection, any physical or operational change to an existing facility which results in an increase in the

emission rate to the atmosphere of any pollutant to which a standard applies shall be considered a modification. Upon modification, an existing facility shall become an affected facility for each pollutant to which a standard applies and for which there is an increase in the emission rate to the atmosphere.

b. Emission rate shall be expressed as kilograms per hour of any pollutant discharged into the atmosphere for which a standard is applicable. The department shall use the following to determine emission rate:

(1) Emission factors as specified in the latest issue of "Compilation of Air Pollutant Emission Factors", EPA Publication No. AP-42, or other emission factors determined by the department to be superior to AP-42 emission factors, in cases where utilization of emission factors demonstrate that the emission level resulting from the physical or operational change will either clearly increase or clearly not increase.

(2) Material balances, continuous monitor data, or manual emission tests in cases where utilization of emission factors as referenced in paragraph 1 does not demonstrate to the department's satisfaction whether the emission level resulting from the physical or operational change will either clearly increase or clearly not increase, or where an owner or operator demonstrates to the department's satisfaction that there are reasonable grounds to dispute the result obtained by the department utilizing emission factors as referenced in paragraph 1. When the emission rate is based on results from manual emission tests or continuous monitoring systems, the procedures specified in Appendix C of this chapter approved by the department shall be used to determine whether an increase in emission rate has occurred. Tests shall be conducted under such conditions as the department shall specify to the owner or operator based on representative performance of the facility. At least three valid test runs must be conducted before and at least three after the physical or operational change. All operating parameters which may affect emissions must be held constant to the maximum feasible degree for all test runs.

c. The addition of an affected facility to a stationary source as an expansion to that source or as a replacement for an existing facility shall not by itself bring within the applicability of this subsection chapter any other facility within that source.

d. A modification shall not be deemed to occur if an existing facility undergoes a physical or operational change where the owner or operator demonstrates to the department's satisfaction (by any of the procedures prescribed under subdivision b of this subsection) that the total emission rate of any pollutant has not increased from all facilities within the stationary source to which appropriate reference, equivalent, or alternative methods, as defined in subsection 2, can be applied. An owner or operator may completely and permanently close any facility within a stationary source to prevent an increase in the total emission rate regardless of whether such reference, equivalent, or alternative method can be applied, if the decrease in the emission rate from such closure can be adequately determined by any of the procedures prescribed under subdivision b of this subsection. The owner or operator of the source shall have the burden of demonstrating compliance with this section.

(1) Such demonstration shall be in writing and shall include-

(a) The name and address of the owner or operator-

(b) The location of the stationary source-

(c) A complete description of the existing facility undergoing the physical or operational change resulting in an increase in emission rate, any applicable control system, and the physical or operational change to such facility-

(d) The emission rates into the atmosphere from the existing facility of each pollutant to which a standard applies determined before and after the physical or operational change takes place, to the extent such information is known or can be predicted-

(e) A complete description of each facility and the control systems, if any, for those facilities within the stationary source where the emission rate of each pollutant in question will be decreased to compensate for the increase in

emission rate from the existing facility undergoing the physical or operational change-

- (f) The emission rates into the atmosphere of the pollutants in question from each facility described under subparagraph e of this subdivision both before and after the improvement or installation of any applicable control system or any physical or operational changes to such facilities to reduce emission rate-
- (g) A complete description of the procedures and methods used to determine the emission rates-
- (2) Compliance with subdivision d of this subsection may be demonstrated by the methods listed in subdivision b of this subsection, where appropriate. The required reduction in emission rate may be accomplished through the installation or improvement of a control system or through physical or operational changes to facilities including reducing the production of a facility or closing a facility-
- (3) Emission rates established for the existing facility which is undergoing a physical or operational change resulting in an increase in the emission rate, and established for the facilities described under subparagraph e of this subdivision shall become the baseline for determining whether such facilities undergo a modification or are in compliance with standards-
- (4) Any emission rate in excess of that rate established under paragraph 3 of this subdivision shall be a violation of this chapter except as otherwise provided in subdivision e of this subsection. However, any owner or operator electing to demonstrate compliance under subdivision d must apply to the department to obtain the use of any exemptions under paragraphs 2, 3, and 4 of this subdivision. The department will grant such exemption only if, in its judgment, the compliance originally demonstrated under this subdivision will not

be circumvented or nullified by the utilization of the exemption.

(5) The department may require the use of continuous monitoring devices and compliance with necessary reporting procedures for each facility described in subparagraphs e and e of paragraph 1 of this subdivision.

[Reserved]

e. The following shall not, by themselves, be considered modifications under this subsection chapter:

(1) Maintenance, repair, and replacement which the department determines to be routine for a source category, subject to the provisions of subdivision c of this subsection and subsection 13.

(2) An increase in production rate of an existing facility, if that increase can be accomplished without a capital expenditure on ~~the stationary source containing~~ that facility.

(3) An increase in the hours of operation.

(4) Use of an alternative fuel or raw material if, prior to the date any standard under this subsection becomes applicable to that source type, the existing facility was designed to accommodate that alternative use. A facility shall be considered to be designed to accommodate an alternative fuel or raw material if that use could be accomplished under the facility's construction specifications, as amended, prior to the change. Conversion to coal required for energy conservation, as specified in section 111(a)(8) of the Clean Air Act, may not be considered a modification.

(5) The addition or use of any system or device whose primary function is the reduction of air pollutants, except when an emission control system is removed or is replaced by a system which the department determines to be less environmentally beneficial.

(6) The relocation or change in ownership of an existing facility.

f. Special provisions set forth under an applicable subdivision of this subsection shall supersede any conflicting provisions of this subsection chapter.

g. Within one hundred eighty days of the completion of any physical or operational change subject to the control

measures specified in subdivision a ~~or~~ d of this subsection, compliance with all applicable standards must be achieved.

13. Reconstruction.

- a. An existing facility, upon reconstruction, becomes an affected facility, irrespective of any change in emission rate.
- b. "Fixed capital cost" means the capital needed to provide all the depreciable components.
- c. "Reconstruction" means the replacement of components of an existing facility to such an extent that:
 - (1) The fixed capital cost of the new components exceeds fifty percent of the fixed capital cost that would be required to construct a comparable entirely new facility; and
 - (2) It is technologically and economically feasible to meet the applicable standards set forth in this section.
- d. If an owner or operator of an existing facility proposes to replace components, and the fixed capital cost of the new components exceeds fifty percent of the fixed capital cost that would be required to construct a comparable entirely new facility, the owner or operator shall notify the department of the proposed replacements. The notice must be postmarked sixty days (or as soon as practicable) before construction of the replacements is commenced and must include the following information:
 - (1) Name and address of the owner or operator.
 - (2) The location of the existing facility.
 - (3) A brief description of the existing facility and the components which are to be replaced.
 - (4) A description of the existing air pollution control equipment and the proposed air pollution control equipment.
 - (5) An estimate of the fixed capital cost of the replacements and of constructing a comparable entirely new facility.
 - (6) The estimated life of the existing facility after the replacements.

- (7) A discussion of any economic or technical limitations the facility may have in complying with the applicable standards of performance after the proposed replacements.
- e. The department will determine, within thirty days of the receipt of the notice required by subdivision d and any additional information it may reasonably require, whether the proposed replacement constitutes reconstruction.
- f. The department's determination under subdivision e shall be based on all of the following:
- (1) The fixed capital cost of the replacement in comparison to the fixed capital cost that would be required to construct a comparable entirely new facility.
 - (2) The estimated life of the facility after the replacements compared to the life of a comparable entirely new facility.
 - (3) The extent to which the components being replaced cause or contribute to the emissions from the facility.
 - (4) Any economic or technical limitations on compliance with applicable standards of performance which are inherent in the proposed replacements.
- g. Individual subdivisions of this subsection may include specific provisions which refine and delimit the concept of reconstruction set forth in this ~~subsection~~ chapter.

14. General control device requirements.

- a. Introduction. This subsection contains requirements for control devices used to comply with applicable sections of chapters 33-15-12 and 33-15-13. The requirements are placed here for administrative convenience and only apply to facilities covered by sections referring to this subsection.
- b. Flares. Subdivisions c through f apply to the flares types which are used to comply with this section.
- c. (1) Flares must be designed for and operated with no visible emissions as determined by the methods specified in subdivision f except for periods not to exceed a total of five minutes during any two consecutive hours.

- (2) Flares must be operated with flame present at all times, as determined by the methods specified in subdivision f.
- (3) Flares shall be used only when the net heating value of the gas being combusted is 11.2 MJ/scm [300 Btu/scf] or greater; if the flare is steam assisted or air assisted; or when the net heating value of the gas being combusted is 7.45 MJ/scm [200 Btu/scf] or greater if the flare is nonassisted. The net heating value of the gas being combusted must be determined by the methods specified in subdivision f.
- (4) (a) Steam-assisted and nonassisted flares must be designed for and operated with an exit velocity, as determined by the methods specified in paragraph 4 of subdivision f, less than 18.3 meters per second [60 feet per second], except as provided in subparagraphs b and c.
- (b) Steam-assisted and nonassisted flares designed for and operated with an exit velocity, as determined by the methods specified in paragraph 4 of subdivision f, equal to or greater than 18.3 meters per second [60 feet per second] but less than one hundred twenty-two meters per second [400 feet per second] are allowed if the net heating value of the gas being combusted is greater than 37.3 MJ/scm [1,000 Btu/scf].
- (c) Steam-assisted and nonassisted flares designed for and operated with an exit velocity, as determined by the methods specified in paragraph 4 of subdivision f, less than the velocity, V_{max} , as determined by the method specified in paragraph 5 of subdivision f, and less than one hundred twenty-two meters per second [400 feet per second] are allowed.
- (5) Air-assisted flares must be designed and operated with an exit velocity less than the velocity, V_{max} , as determined by the method specified in paragraph 6 of subdivision f.
- (6) Flares used to comply with this subsection must be steam assisted, air assisted, or nonassisted.
- d. Owners or operators of flares used to comply with the provisions of this section shall monitor these control devices to ensure that they are operated and maintained in conformance with their designs. Applicable sections will

provide provisions stating how owners or operators of flares shall monitor these control devices.

e. Flares used to comply with provisions of this section shall be operated at all times when emissions may be vented to them.

f. (1) Reference method 22 must be used to determine the compliance of flares with the visible emission provisions of this section. The observation period is two hours and must be used according to method 22.

(2) The presence of a flare pilot flame must be monitored using a thermocouple or any other equivalent device to detect the presence of a flame.

(3) The net heating value of the gas being combined in a flare must be calculated using the following equation:

$$H_T = K \sum_{i=1}^n C_i H_i$$

where:

H_T = Net heating value of the sample, MJ/scm; where the net enthalpy per mole of off-gas is based on combustion at 25 degrees C and 760 mm Hg, but the standard temperature for determining the volume corresponding to one mole is 20 degrees C;

K = Constant,

$$1.740 \times 10^{-7} \frac{1}{\text{ppm}} \frac{\text{g mole}}{\text{scm}} \frac{\text{MJ}}{\text{kcal}}$$

where the standard temperature for g mole/scm is 20 degrees C;

C_i = Concentration of sample component i in ppm on a wet basis, as measured for organics by reference method 18 and measured for hydrogen and carbon monoxide by ASTM D1946-77; and

H_i = Net heat of combustion of sample component i, kcal/g mole at 25 degrees C and 760 mm Hg. The heats of combustion may be determined using ASTM D2382-76 if published values are not available or cannot be calculated.

(4) The actual exit velocity of a flare must be determined by dividing the volumetric flowrate (in units of standard temperature and pressure), as determined by reference methods 2, 2A, 2C, or 2D as appropriate; by the unobstructed (free) cross sectional area of the flare tip.

(5) The maximum permitted velocity, V_{max} , for flares complying with subparagraph c of paragraph 4 of subdivision c must be determined by the following equation:

$$\log_{10}(V_{max}) = (H_T + 28.8)/31.7$$

V_{max} = Maximum permitted velocity, M/sec

28.8 = Constant

31.7 = Constant

H_T = The net heating value as determined
in paragraph 3

(6) The maximum permitted velocity, V_{max} , for air-assisted flares must be determined by the following equation:

$$V_{max} = 8.706 + 0.7084 (H_T)$$

V_{max} = Maximum permitted velocity, m/sec

8.706 = Constant

0.7084 = Constant

H_T = The net heating value as determined in
paragraph 3.

History: Amended effective October 1, 1987.

General Authority: NDCC 23-25-03, 28-32-02

Law Implemented: NDCC 23-25-03

33-15-12-04. Standards of performance.

1. Standards of performance for fossil-fuel steam generators.

a. Applicability and designation of affected facility.

(1) The affected facilities to which the provisions of this subsection apply are:

- (a) Each fossil fuel-fired steam generating unit of more than seventy-three megawatts [250 million Btu per hour] heat input rate.
 - (b) Each fossil fuel and wood residue-fired steam generating unit capable of firing fossil fuel at a heat input rate of more than seventy-three megawatts [250 million Btu per hour].
- (2) Any change to an existing fossil fuel-fired steam generating unit to accommodate the use of combustible materials, other than fossil fuels as defined in this subsection, shall not bring that unit under the applicability of this subsection.
 - (3) Except as provided in paragraphs 4 and 5 any facility under paragraph 1 that commenced construction or modification after August 7, 1971, is subject to the requirements of this subsection.
 - (4) The requirements of subparagraphs d and e of paragraph 1 and paragraphs 3 2 and 4 of subdivision e are applicable to lignite-fired steam generating units that commenced construction or modification after December 22, 1976.
 - (5) Any facility covered under subsection 2 is not covered under this subsection.
- b. Definitions. As used in this subsection, all terms not defined herein shall have the meaning given them in North Dakota Century Code chapter 23-25, and in subsection 2 of section 33-15-12-01.
- (1) "Coal" means all solid fuels classified as anthracite, bituminous, subbituminous, or lignite by the American society for testing material. Designation ~~D388-66~~ D388-77.
 - (2) "Coal refuse" means waste products of coal mining, cleaning, and coal preparation operations, e.g., culm, gob, etc., containing coal, matrix material, clay, and other organic and inorganic material.
 - (3) "Fossil fuel" means natural gas, petroleum, coal, and any form of solid, liquid, or gaseous fuel derived from such materials for the purpose of creating useful heat.
 - (4) "Fossil fuel-fired steam generating unit" means furnace or boiler used in the process of burning fossil fuel for the purpose of producing steam by heat transfer.

- (5) "Fossil fuel and wood residue-fired steam generating unit" means a furnace or boiler used in the process of burning fossil fuel and wood residue for the purpose of producing steam by heat transfer.
- (6) "Wood residue" means bark, sawdust, slabs, chips, shavings, mill trim, and other wood products derived from wood processing and forest management operations.
- c. Standard for particulate matter. On and after the date on which the performance test required to be conducted by subsection 7 of section 33-15-12-01 is completed, no owner or operator subject to the provisions of this subsection shall cause to be discharged into the atmosphere from any affected facility any gases which:
- (1) Contain particulate matter in excess of forty-three nanograms per joule [0.10 pound per million Btu] heat input derived from fossil fuel or fossil fuel and wood residue.
- (2) Exhibit greater than twenty percent opacity except for one six-minute period per hour of not more than twenty-seven percent opacity.
- d. Standard for sulfur dioxide.
- (1) On and after the date on which the performance test required to be conducted by subsection 7 of section 33-15-12-01 is completed, no owner or operator subject to the provisions of this subsection shall cause to be discharged into the atmosphere from any affected facility any gases which contain sulfur dioxide in excess of:
- (a) Three hundred forty nanograms per joule [0.80 pound per million Btu] heat input derived from liquid fossil fuel or liquid fossil fuel and wood residue.
- (b) Five hundred twenty nanograms per joule [1.2 pound per million Btu] heat input derived from solid fossil fuel or solid fossil fuel and wood residue.
- (2) When different fossil fuels are burned simultaneously in any combination, the applicable standard (in nanograms per joule) shall be determined by proration using the following formula:

$$PS_{SO_2} = \frac{y(340) + z(520)}{y + z}$$

where:

P_{SO_2} = prorated standard for sulfur dioxide when burning different fuels simultaneously, in nanograms per joule heat input derived from all fossil fuels fired or from all fossil fuels and wood residue fired.

y = percentage of total heat input derived from liquid fossil fuel.

z = percentage of total heat input derived from solid fossil fuel.

(3) Compliance shall be based on the total heat input from all fossil fuels burned, including gaseous fuels.

e. Standard for nitrogen oxides.

(1) On and after the date on which the performance test required to be conducted by subsection 7 of section 33-15-12-01 is completed, no owner or operator subject to the provisions of this subsection shall cause to be discharged into the atmosphere from any affected facility any gases which contain nitrogen oxides expressed as NO_2 in excess of:

(a) Eighty-six nanograms per joule [0.20 pound per million Btu] heat input derived from gaseous fossil fuel or gaseous fossil fuel and wood residue.

(b) One hundred thirty nanograms per joule [0.30 pound per million Btu] heat input derived from liquid fossil fuel or liquid fossil fuel and wood residue.

(c) Three hundred nanograms per joule [0.70 pound per million Btu] heat input derived from solid fossil fuel or solid fossil fuel and wood residue (except lignite or a solid fossil fuel containing twenty-five percent by weight, or more of coal refuse).

(d) Two hundred sixty nanograms per joule [0.60 pound per million Btu] heat input derived from lignite or lignite and wood residue (except as provided under subparagraph e).

(e) Three hundred forty nanograms per joule [0.80 pound per million Btu] heat input derived from

lignite which is mined in North Dakota, South Dakota, or Montana and which is burned in a cyclone-fired unit.

- (2) Except as provided under paragraphs 3 and 4, when different fossil fuels are burned simultaneously in any combination, the applicable standard (in nanograms per joule) is determined by proration using the following formula:

$$PS_{NO_x} = \frac{w(260)+x(86)+y(130)+z(300)}{w+x+y+z}$$

where:

PS_{NO_x} = prorated standard for nitrogen oxides when burning different fuels simultaneously, in nanograms per joule heat input derived from all fossil fuels fired or from all fossil fuels and wood residue fired.

w = percentage of total heat input derived from lignite.

x = percentage of total heat input derived from gaseous fossil fuel.

y = percentage of total heat input derived from liquid fossil fuel.

z = percentage of total heat input derived from solid fossil fuel (except lignite).

- (3) When a fossil fuel containing at least twenty-five percent, by weight, of coal refuse is burned in combination with gaseous, liquid, or other solid fossil fuel or wood residue, the standard for nitrogen oxides does not apply.

- (4) Cyclone-fired units which burn fuels containing at least twenty-five percent of lignite that is mined in North Dakota, South Dakota, or Montana remain subject to subparagraph e of paragraph 1 regardless of the types of fuel burned in combination with that lignite.

f. Emission and fuel monitoring.

- (1) Each owner or operator shall install, calibrate, maintain, and operate continuous monitoring systems for measuring the opacity of emissions, sulfur dioxide emissions, nitrogen oxides emissions, and

either oxygen or carbon dioxide except as provided in paragraph 2.

- (2) Certain of the continuous monitoring system requirements under paragraph 1 do not apply to owners or operators under the following conditions:
 - (a) For a fossil fuel-fired steam generator that burns only gaseous fossil fuel, continuous monitoring systems for measuring the opacity of emissions and sulfur dioxide emissions are not required.
 - (b) For a fossil fuel-fired steam generator that does not use a flue gas desulfurization device, a continuous monitoring system for measuring sulfur dioxide emissions is not required if the owner or operator monitors sulfur dioxide emissions by fuel sampling and analysis under paragraph 4.
 - (c) Notwithstanding subdivision b of subsection 11 of section 33-15-12-01, installation of a continuous monitoring system for nitrogen oxides may be delayed until after the initial performance tests under subsection 7 of section 33-15-12-01 have been conducted. If the owner or operator demonstrates during the performance test that emissions of nitrogen oxides are less than seventy percent of the applicable standards in ~~subdivision e of subsection 1 of section 33-15-12-04~~, a continuous monitoring system for measuring nitrogen oxides emissions is not required. If the initial performance test results show that nitrogen oxide emissions are greater than seventy percent of the applicable standard, the owner or operator shall install a continuous monitoring system for nitrogen oxides within one year after the date of the initial performance tests under subsection 7 of section 33-15-12-01 and comply with all other applicable monitoring requirements under this subdivision.
 - (d) If an owner or operator does not install any continuous monitoring systems for sulfur oxides and nitrogen oxides, as provided under subparagraphs a and c or subparagraphs b and c, a continuous monitoring system for measuring either oxygen or carbon dioxide is not required.
- (3) For performance evaluations under subdivision c of subsection 11 of section 33-15-12-01 and calibration

checks under subdivision d of subsection 11 of section 33-15-12-01, the following procedures shall be used:

- (a) Reference Method method 6 or 6C and 7, 7A, 7C, 7D, or 7E, as applicable, ~~shall~~ must be used for conducting performance evaluations of sulfur dioxide and nitrogen oxides continuous monitoring systems.
- (b) Sulfur dioxide or nitric oxide, as applicable, ~~shall~~ must be used for preparing calibration gas mixtures under Performance Specification performance specification 2 of Appendix appendix B to this chapter.
- (c) For affected facilities burning fossil fuel, the span value for a continuous monitoring system measuring the opacity of emissions shall be eighty, ninety, or one hundred percent and for a continuous monitoring system measuring sulfur oxides or nitrogen oxides the span value shall be determined as follows:

(In parts per million)

Fossil fuel	Span value for sulfur dioxide	Span value for nitrogen oxides
Gas	*	500
Liquid	1,000	500
Solid	1,500	500
Combinations	$1,000y+1,500z$	$500(x+y)+1,000z$

* Not applicable.

where:

x = fraction of total heat input derived from gaseous fossil fuel.

y = fraction of total heat input derived from liquid fossil fuel.

z = fraction of total heat input derived from solid fossil fuel.

- (d) All span values computed under subparagraph c for burning combinations of fossil fuels shall

be rounded to the nearest five hundred parts per million.

- (e) For a fossil fuel-fired steam generator that simultaneously burns fossil fuel and nonfossil fuel, the span value of all continuous monitoring systems shall be subject to the department's approval.

(4) [Reserved]

- (5) For any continuous monitoring system installed under subparagraph 1, the following conversion procedures ~~shall~~ must be used to convert the continuous monitoring data into units of the applicable standards (nanograms per joule, pounds per million Btu):

- (a) When a continuous monitoring system for measuring oxygen is selected, the measurement of the pollutant concentration and oxygen concentration shall each be on a consistent basis (wet or dry). Alternative procedures approved by the department shall be used when measurements are on a wet basis. When measurements are on a dry basis, the following conversion procedure shall be used:

$$E = CF \left[\frac{20.9}{20.9 - \text{percent } O_2} \right]$$

where:

E, C, F, and %O₂, are determined under paragraph 6.

- (b) When a continuous monitoring system for measuring carbon dioxide is selected, the measurements of the pollutant concentration and carbon dioxide concentration shall each be on a consistent basis (wet or dry) and the following conversion procedure shall be used:

$$E = CF_c \left[\frac{100}{\text{percent } CO_2} \right]$$

where:

E, C, F_c, and %CO₂ are determined under paragraph 6.

- (6) The values used in the equations under paragraph 5 are derived as follows:

- (a) E = pollutant emission, ng/j [lb/million Btu].
- (b) C = pollutant concentration, ng/dscm [lb/dscf], determined by multiplying the average concentration (ppm) for each one-hour period by $4.15 \times 10^4 M$ ng/dscm per ppm [$2.59 \times 10^{-9} M$ lb/dscf per ppm] where M = pollutant molecular weight, g/g-mole [lb/lb-mole]. $M = 64.07$ for sulfur dioxide and 46.01 for nitrogen oxides.
- (c) $\%O_2$, $\%CO_2$ = oxygen or carbon dioxide volume (expressed as percent).
- (d) F , F_c = a factor representing a ratio of the volume of dry flue gases generated to the calorific value of the fuel combusted (F) and a factor representing a ratio of the volume of carbon dioxide generated to the calorific value of the fuel combusted (F_c), respectively.

Values of F and F_c are given as follows:

- [1] For anthracite coal as classified according to A.S.T.M. D388-66 D388-77, $F = 2.723 \times 10^{-7}$ dscm/j [10140 dscf/million Btu] and $F_c = 0.532 \times 10^{-7}$ scm CO_2 /j [1980 scf CO_2 /million Btu].
- [2] For subbituminous and bituminous coal as classified according to A.S.T.M. D388-66 D388-77, $F = 2.637 \times 10^{-7}$ dscm/j [9820 dscf/million Btu] and $F_c = 0.486 \times 10^{-7}$ scm CO_2 /j [1810 scf CO_2 /million Btu].
- [3] For liquid fossil fuels including crude, residual, and distillate oils, $F = 2.476 \times 10^{-7}$ dscm/j [9220 dscf/million Btu] and $F_c = 0.384 \times 10^{-7}$ scm CO_2 /j [1430 scf CO_2 /million Btu].

[4] For gaseous fossil fuels, $F = 2.347 \times 10^{-7}$ dscm/j [8740 dscf/million Btu]. For natural gas, propane, and butane fuels, $F_c = 0.279 \times 10^{-7}$ scm CO₂/j [1040 scf CO₂/million Btu] for natural gas, 0.322×10^{-7} scm CO₂/j [1200 scf CO₂/million Btu] for propane, and 0.338×10^{-7} scm CO₂/j [1260 scf CO₂/million Btu] for butane.

[5] For bark $F = \frac{2.589 \times 10^{-7}}{9,640}$ dscm/j [$\frac{1,840}{9,640}$ dscf/million Btu] and $F_c = \frac{0.500 \times 10^{-7}}{9,640}$ scm CO₂/j [$\frac{1,840}{9,640}$ scf CO₂/million Btu]. For wood residue other than bark $F = \frac{2.492 \times 10^{-7}}{9,280}$ dscm/j [$\frac{1,860}{9,280}$ dscf/million Btu] and $F_c = \frac{0.494 \times 10^{-7}}{9,280}$ scm CO₂/j [$\frac{1,860}{9,280}$ scf CO₂/million Btu].

[6] For lignite coal as classified according to A.S.T.M. D388-66 D388-77, $F = 2.659 \times 10^{-7}$ dscm/j [9900 dscf/million Btu] and $F_c = 0.516 \times 10^{-7}$ scm CO₂/j [1920 scf CO₂/million Btu].

(e) The owner or operator may use the following equations to determine an F factor (dscm/j, or dscf/million Btu) on a dry basis (if it is desired to calculate F on a wet basis, consult with the department) or F_c factor (scm CO₂/j, or scf CO₂/million Btu) on either basis in lieu of the F or F_c factors specified in subparagraph d of this paragraph:

$$F = 10^{-6} \left[\frac{227.2(\%H) + 95.5(\%C) + 35.6(\%S) + 8.7(\%N) - 28.7(\%O)}{\text{GCV}} \right] \text{ (metric units)}$$

$$F = 10^6 \left(\frac{3.64\%H + 1.53\%C + 0.57\%S + 0.14\%N - 0.46\%O}{\text{GCV}} \right) \text{ (English units)}$$

$$F_c = \frac{2.0 \times 10^{-5}}{\text{GCV}} (\%C) \text{ (metric units)}$$

$$F_c = \frac{321 \times 10^3}{\text{GCV}} \%C \text{ (English units)}$$

[1] H, C, S, N, and O are content by weight of hydrogen, carbon, sulfur, nitrogen, and oxygen (expressed as percent), respectively, as determined on the same basis as GCV by ultimate analysis of the fuel fired, using A.S.T.M. method D3178-74 or D3176 (solid fuels), or computed from results using A.S.T.M. methods ~~D1137-53(70)~~ D1137-53(75), ~~D1945-64(73)~~ D1945-64(76), or ~~D1946-67(72)~~ D1946-77 (gaseous fuels) as applicable.

[2] GCV is the gross calorific value (kJ/kg, Btu/lb) of the fuel combusted, determined by the A.S.T.M. test methods ~~D2015-66(72)~~ D2015-77 for solid fuels and ~~D1826-64(70)~~ D1826-77 for gaseous fuels as applicable.

[3] For affected facilities which fire both fossil fuels and nonfossil fuels, the F or F_c value shall be subject to the department's approval.

(f) For affected facilities firing combinations of fossil fuels or fossil fuels and wood residue, the F or F_c factors determined by subparagraph d or e of this paragraph shall be prorated in accordance with the applicable formula as follows:

{1}

$$F = \sum_{i=1}^n X_i F_i \text{ or } F_c = \sum_{i=1}^n X_i (F_c)_i$$

where:

X_i = fraction of total heat input derived from each type fuel (e.g., natural gas, bituminous coal, wood residue₂, etc.).

F_i or $(F_c)_i$ = applicable F_c factor for each fuel type determined in accordance with subparagraph d or e.

n = number of fuels being burned in combination.

~~{2} For affected facilities which fire both fossil fuels and nonfossil fuels, the F or F_c value shall be subject to the department's approval.~~

(7) For the purpose of reports required under subdivision c of subsection 6 of section 33-15-12-01, periods of excess emissions that shall be reported are defined as follows:

(a) Opacity. Excess emissions are defined as any six-minute period during which the average opacity of emissions exceeds twenty percent opacity, except that one six-minute average per hour of up to twenty-seven percent opacity need not be reported.

(b) Sulfur dioxide. Excess emissions for affected facilities are defined as:

[1] Any three-hour period during which the average emissions (arithmetic average of three contiguous one-hour periods) of sulfur dioxide as measured by a continuous monitoring system exceed the applicable standard under subdivision d of subsection 1.

~~{2} {Reserved}~~

(c) Nitrogen oxides. Excess emissions for affected facilities using a continuous monitoring system for measuring nitrogen oxides are defined as any three-hour period during which the average emissions (arithmetic average of three contiguous one-hour periods) exceed the

applicable standards under subdivision e of subsection 1.

g. Test methods and procedures.

- (1) The reference methods in ~~Appendix~~ appendix A of this chapter, except as provided in subdivision b of subsection 7 of section 33-15-12-01, ~~shall~~ must be used to determine compliance with the standards as prescribed in subdivisions c, d, and e of this subsection as follows:
 - (a) Method 1 for selection of sampling site and sample traverses.
 - (b) Method 3 or 3A for gas analysis to be used when applying Reference Methods reference methods 5, 6, or 6C, and 7, 7A, 7C, 7D, or 7E.
 - (c) Method 5 for concentration of particulate matter and the associated moisture content.
 - (d) Method 6 or 6C for concentration of sulfur dioxide. Method 6A may be used whenever methods 6 or 6C and 3 or 3A data are used to determine the sulfur dioxide emission rate in nanograms per joule.
 - (e) Method 7, 7A, 7C, 7D, or 7E for concentration of nitrogen oxides.
- (2) For ~~Method~~ method 5, ~~Method~~ method 1 ~~shall~~ must be used to select the sampling site and the number of traverse sampling points. The sampling time for each run ~~shall~~ must be at least sixty minutes and the minimum sampling volume ~~shall~~ must be 0.85 dry cubic meter at standard conditions [30 dscf] except that smaller sampling times or volumes, when necessitated by process variables or other factors, may be approved by the department. The probe and filter holder heating systems in the sampling train ~~shall~~ must be set to provide a gas temperature no greater than four hundred thirty-three degrees Kelvin [320 degrees Fahrenheit].
- (3) For ~~Methods~~ methods 6 or 6C and 7, 7A, 7C, 7D, or 7E, the sampling site ~~shall~~ must be the same as that selected for ~~Method~~ method 5. The sampling point in the duct ~~shall~~ must be at the centroid of the cross section or at a point no closer to the walls than one meter [3.28 feet]. For methods 6, 7C, and 7D, the sample must be extracted at a rate

proportional to the gas velocity at the sampling point.

- (4) For **Method method 6**, the minimum sampling time shall must be twenty minutes and the minimum sampling volume 0.02 dry cubic meter at standard conditions [0.71 dscf] for each sample. The arithmetic mean of two samples shall constitute one run. Samples shall must be taken at approximately thirty-minute intervals.
- (5) For **Method method 7 or 7A**, each run shall consist of at least four grab samples taken at approximately fifteen-minute intervals. The arithmetic mean of the samples shall constitute the run value. For method 7C or 7D, each run shall consist of a one-hour sample.
- (6) For each run using the methods specified by subparagraphs c, d, and e of paragraph 1, the emissions expressed in nanograms per joule [pounds per million Btu] shall must be determined by the following equation procedure:

$$E = CF \frac{20.9}{20.9 - \text{percent } O_2}$$

where:

(a) E = pollutant emission ng/j [lb/million Btu].

(b) C = pollutant concentration, ng/dscm [lb/dscf], determined by Method method 5, 6, or 6C, 7, 7A, 7C, 7D, or 7E.

(c) %O₂ = oxygen content by volume (expressed as percent), dry basis. Percent oxygen shall must be determined by using the integrated or grab sampling and analysis procedures of Method method 3 or 3A as applicable. The sample shall must be obtained as follows:

[1] For determination of sulfur dioxide by method 6 or 6C and nitrogen oxides emissions by method 7, 7A, 7C, 7D, or 7E, the oxygen sample shall must be obtained simultaneously at the same point in the duct as used to obtain the samples for **Methods 6 and 7 determinations, respectively, paragraph 3 of this subdivision.** For Method method 7

or 7A, the oxygen samples ~~shall~~ must be obtained using the grab sampling and analysis procedures of ~~Method~~ method 3 or 3A.

[2] For determination of particulate emissions, the oxygen sample ~~shall~~ must be obtained simultaneously by traversing the duct at the same sampling location used for each run of ~~Method~~ method 5 under paragraph 2 of this subdivision. Method 1 ~~shall~~ must be used for selection of the number of traverse points except that no more than twelve sample points are required.

(d) F = a factor as determined in subparagraphs d, e, and f of paragraph 6 of subdivision f.

(7) When combinations of fossil fuels or fossil fuel and wood residue are fired, the heat input, expressed in watts (Btu/hr), is determined during each testing period by multiplying the gross calorific value of each fuel fired (in j/kg or Btu/lb) by the rate of each fuel burned (in kg/sec or lb/hr). Gross calorific values are determined in accordance with A.S.T.M. methods ~~B2015-66~~ ~~(72)~~ D2015-77 (solid fuels), ~~B240-64~~ ~~(73)~~ D240-76 (liquid fuels), or ~~B1826~~ ~~(7)~~ D1826-77 (gaseous fuels), as applicable. The method used to determine calorific value of wood residue must be approved by the department. The owner or operator shall determine the rate of fuels burned during each testing period by suitable methods and shall confirm the rate by a material balance over the steam generation system.

2. Standards of performance of electric utility steam generating units.

a. Applicability and designation of affected facility.

(1) The affected facility to which this subsection applies is each electric utility steam generating unit:

(a) That is capable of combusting more than seventy-three megawatts [250 million Btu/hour] heat input of fossil fuel (either alone or in combination with any other fuel); and

(b) For which construction or modification is commenced after September 18, 1978.

- (2) This subsection applies to electric utility combined cycle gas turbines that are capable of combusting more than seventy-three megawatts [250 million Btu/hour] heat input of fossil fuel in the steam generator. Only emissions resulting from combustion of fuels in the steam generating unit are subject to this subsection.
- (3) Any change in an existing fossil-fuel-fired steam generating unit to accommodate the use of combustible materials, other than fossil fuels, shall not bring that unit under the applicability of this subsection.
- (4) Any change in an existing steam generating unit originally designed to fire gaseous or liquid fossil fuels, to accommodate the use of any other fuel (fossil or nonfossil) shall not bring that unit under the applicability of this subsection.

b. Definitions. As used in this subsection, all terms not defined herein shall have the meaning given them in North Dakota Century Code chapter 23-25 and in subsection 2 of section 33-15-12-01.

- (1) "Anthracite" means coal that is classified as anthracite according to the American society of testing and materials' Standard Specification for Classification of Coals by Rank ~~D388-66~~ D388-77.
- (2) "Available purchase power" means the lesser of the following:
 - (a) The sum of available system capacity in all neighboring companies.
 - (b) The sum of the rated capacities of the power interconnection devices between the principal company and all neighboring companies, minus the sum of the electric power load on these interconnections.
 - (c) The rated capacity of the power transmission lines between the power interconnection devices and the electric generating units (the unit in the principal company that has the malfunctioning flue gas desulfurization system and the units in the neighboring company supplying replacement electrical power) less the electric power load on these transmission lines.
- (3) "Available system capacity" means the capacity determined by subtracting the system load and the

system emergency reserves from the net system capacity.

- (4) "Boiler operating day" means a twenty-four-hour period during which fossil fuel is combusted in a steam generating unit for the entire twenty-four hours.
- (5) "Coal refuse" means waste products of coal mining, physical coal cleaning, and coal preparation operations, e.g., culm, gob, etc., containing coal, matrix material, clay, and other organic and inorganic material.
- (6) "Combined cycle gas turbine" means a stationary turbine combustion system where heat from the turbine exhaust gases is recovered by a steam generating unit.
- (7) "Commercial demonstration permit" means a permit which is issued by the administrator of the United States environmental protection agency in accordance with 40 CFR 60.45a.
- (8) "Electric utility combined cycle gas turbine" means any combined cycle gas turbine used for electric generation that is constructed for the purpose of supplying more than one-third of its potential electric output capacity and more than twenty-five megawatts electric output to any utility power distribution system for sale. Any steam distribution system that is constructed for the purpose of providing steam to a steam electric generator that would produce electrical power for sale is also considered in determining the electrical energy output capacity of the affected facility.
- (9) "Electric utility company" means the largest interconnected entity that generates electric power for sale, e.g., a holding company with operating subsidiary companies.
- (10) "Electric utility steam generating unit" means any steam electric generating unit that is constructed for the purpose of supplying more than one-third of its potential electric output capacity and more than twenty-five megawatts electrical output to any utility power distribution system for sale. Any steam supplied to a steam distribution system for the purpose of providing steam to a steam electric generator that would produce electrical energy for sale is also considered in determining the electrical energy output capacity of the affected facility.

- (11) "Emergency condition" means that period of time when:
- (a) The electric generation output of an affected facility with a malfunctioning flue gas desulfurization system cannot be reduced or electrical output must be increased because:
 - [1] All available system capacity in the principal company interconnected with the affected facility is being operated; and
 - [2] All available purchase power interconnected with the affected facility is being obtained; or
 - (b) The electric generation demand is being shifted as quickly as possible from an affected facility with a malfunctioning flue gas desulfurization system to one or more electrical generating units held in reserve by the principal company or by a neighboring company; or
 - (c) An affected facility with a malfunctioning flue gas desulfurization system becomes the only available unit to maintain a part or all of the principal company's system emergency reserves and the unit is operated spinning reserve at the lowest practical electric generation load consistent with not causing significant physical damage to the unit. If the unit is operated at a higher load to meet load demand, an emergency condition would not exist unless the conditions under subparagraph a apply.
- (12) "Fossil fuel" means natural gas, petroleum, coal and any form of solid, liquid, or gaseous fuels derived from such material for the purpose of creating useful heat.
- (13) "Interconnected" means that two or more electric generating units are electrically tied together by a network of power transmission lines, and other power transmission equipment.
- (14) "Lignite" means coal that is classified as lignite A or B according to the American society of testing and materials' Standard Specification for Classification of Coals by Rank D388-66 D388-77.
- (15) "Neighboring company" means any one of those electric utility companies with one or more electric power interconnections to the principal company and which have geographically adjoining service areas.

- (16) "Net system capacity" means the sum of the net electric generating capability (not necessarily equal to rated capacity) of all electric generating equipment owned by an electric utility company (including steam generating units, internal combustion engines, gas turbines, nuclear units, hydroelectric units, and all other electric generating equipment) plus firm contractual purchases that are interconnected to the affected facility that has the malfunctioning flue gas desulfurization system. The electric generating capability of equipment under multiple ownership is prorated based on ownership unless the proportional equipment to electric output is otherwise established by contractual arrangement.
- (17) "Potential combustion concentration" means the theoretical emissions (ng/j, lb/million Btu heat input) that would result from combustion of a fuel in an uncleaned state without emission control systems and;
- (a) For particulate matter is:
- [1] Three thousand nanograms per joule [7.0 lb/million Btu] heat input for solid fuel; and
 - [2] Seventy-five nanograms per joule [0.17 lb/million Btu] heat input for liquid fuels.
- (b) For sulfur dioxide is determined under paragraph 2 of subdivision h.
- (c) For nitrogen oxides is:
- [1] Two hundred ninety nanograms per joule [0.67 lb/million Btu] heat input for gaseous fuels;
 - [2] Three hundred ten nanograms per joule [0.72 lb/million Btu] heat input for liquid fuels; and
 - [3] Nine hundred ninety nanograms per joule [2.30 lb/million Btu] heat input for solid fuels.
- (18) "Potential electric output capacity" is defined as thirty-three percent of the maximum design heat input capacity of the steam generating unit, e.g., a steam generating unit with a one hundred megawatt [340

million Btu/hr] fossil-fuel heat input capacity would have a thirty-three megawatt potential electrical output capacity. For electric utility combined cycle gas turbines the potential electrical output capacity is determined on the basis of the fossil-fuel firing capacity of the steam generator exclusive of the heat input and electrical power contribution by the gas turbine.

- (19) "Principal company" means the electric utility company or companies which own the affected facility.
- (20) "Resource recovery unit" means a facility that combusts more than seventy-five percent nonfossil fuel on a quarterly (calendar) heat input basis.
- (21) "Solid-derived fuel" means any solid, liquid, or gaseous fuel derived from solid fuel for the purpose of creating useful heat and includes, but is not limited to, solvent refined coal, liquefied coal, and gasified coal.
- (22) "Spare flue gas desulfurization system module" means a separate system of sulfur dioxide emission control equipment capable of treating an amount of flue gas equal to the total amount of flue gas generated by an affected facility when operated at maximum capacity divided by the total number of nonspare flue gas desulfurization modules in the system.
- (23) "Spinning reserve" means the sum of the unutilized net generating capability of all units of the electric utility company that are synchronized to the power distribution system and that are capable of immediately accepting additional load. The electric generating capability of equipment under multiple ownership is prorated based on ownership unless the proportional entitlement to electric output is otherwise established by contractual arrangement.
- (24) "Steam generating unit" means any furnace, boiler, or other device used for combusting fuel for the purpose of producing steam (including fossil-fuel-fired steam generators associated with combined cycle gas turbines; nuclear steam generators are not included).
- (25) "Subbituminous coal" means coal that is classified as subbituminous A, B, or C according to the American society of testing and materials' Standard Specification for Classification of Coals by Rank B388-66 D388-77.

- (26) "System emergency reserves" means an amount of electric generating capacity equivalent to the rated capacity of the single largest electric generating unit in the electric utility company (including steam generating unit, internal combustion engines, gas turbines, nuclear units, hydroelectric units, and all other electric generating equipment) which is interconnected with the affected facility that has the malfunctioning flue gas desulfurization system. The electric generating capability of equipment under multiple ownership is prorated based on ownership unless the proportional entitlement to electric output is otherwise established by contractual arrangement.
- (27) "System load" means that entire electric demand of an electric utility company's service area interconnected with the affected facility that has the malfunctioning flue gas desulfurization system plus firm contractual sales to other electric utility companies. Sales to other electric utility companies, e.g., emergency power, not on a firm contractual basis may also be included in the system load when no available system capacity exists in the electric utility company to which the power is supplied for sale.
- (28) "Twenty-four-hour period" means the period of time between 12:01 a.m. and 12:00 midnight.

c. Standard for particulate matter.

- (1) On and after the date on which the performance test required to be conducted under subsection 7 of section 33-15-12-01 is completed, no owner or operator subject to the provisions of this subsection ~~shall~~ may cause to be discharged into the atmosphere from any affected facility any gases which contain particulate matter in excess of:
- (a) Thirteen nanograms per joule [0.03 lb/million Btu] heat input derived from the combustion of solid, liquid, or gaseous fuel;
 - (b) One percent of the potential combustion concentration (99 ninety-nine percent reduction) when combusting solid fuel; and
 - (c) Thirty percent of potential combustion concentration (70 seventy percent reduction) when combusting liquid fuel.

- (2) On and after the date the particulate matter performance test required to be conducted under subsection 7 of section 33-15-12-01 is completed, no owner or operator subject to the provisions of this subsection ~~shall~~ may cause to be discharged into the atmosphere from any affected facility any gases which exhibit greater than twenty percent opacity (six-minute average), except for one six-minute period per hour of not more than twenty-seven percent opacity.

d. Standard for sulfur dioxide.

- (1) On and after the date on which the initial performance test required to be conducted under subsection 7 of section 33-15-12-01 is completed, no owner or operator subject to the provisions of this subsection ~~shall~~ may cause to be discharged into the atmosphere from any affected facility which combusts solid fuel or solid-derived fuel, except as provided under paragraph 3, 4, 5, or 7), any gases which contain sulfur dioxide in excess of:
 - (a) Five hundred twenty nanograms per joule [1.20 lb/million Btu] heat input and ten percent of the potential combustion concentration (ninety percent reduction); or
 - (b) Thirty percent of the potential combustion concentration (~~70~~ seventy percent reduction), when emissions are less than two hundred sixty nanograms per joule [0.60 lb/million Btu] heat input.
- (2) On and after the date on which the initial performance test required to be conducted under subsection 7 of section 33-15-12-01 is completed, no owner or operator subject to the provisions of this subsection ~~shall~~ may cause to be discharged into the atmosphere from any affected facility which combusts liquid or gaseous fuels (except for liquid or gaseous fuels derived from solid fuels and as provided under paragraph 7), any gases which contain sulfur dioxide in excess of:
 - (a) Three hundred forty nanograms per joule [0.80 lb/million Btu] heat input and ten percent of the potential combustion concentration (ninety percent reduction); or
 - (b) One hundred percent of the potential combustion concentration (zero percent reduction) when

emissions are less than eighty-six nanograms per joule [0.20 lb/million Btu] heat input.

- (3) On and after the date on which the initial performance test required to be conducted under subsection 7 of section 33-15-12-01 is complete, no owner or operator subject to the provisions of this subsection ~~shall~~ may cause to be discharged into the atmosphere from any affected facility which combusts solid solvent refined coal (SCR-I) any gases which contain sulfur dioxide in excess of five hundred twenty nanograms per joule [1.20 lb/million Btu] heat input and fifteen percent of the potential combustion concentration (eighty-five percent reduction), except as provided under paragraph 5, compliance with the emission limitation is determined on a thirty-day rolling average basis and compliance with the percent reduction requirement is determined on a twenty-four-hour basis.
- (4) Sulfur dioxide emissions are limited to five hundred twenty nanograms per joule [1.20 lb/million Btu] heat input from any affected facility which:
 - (a) Combusts one hundred percent anthracite; and
 - (b) Is classified as a resource recovery facility.
- (5) The emission reduction requirements under this subsection do not apply to any affected facility that is operated under a sulfur dioxide commercial demonstration permit issued by the administrator of the United States environmental protection agency.
- (6) Compliance with the emission limitation and percent reduction requirements under this subdivision are both determined on a thirty-day rolling average basis except as provided under paragraph 3.
- (7) When different fuels are combusted simultaneously, the applicable standard is determined by proration using the following formula:
 - (a) If emissions of sulfur dioxide to the atmosphere are greater than two hundred sixty nanograms per joule [0.60 lb/million Btu] heat input:
$$E_{SO_2} = [340 x + 520 y]/100$$
$$P_{SO_2} = 10 \text{ percent}$$
 - (b) If emissions of sulfur dioxide to the atmosphere are equal to or less than two hundred sixty

nanograms per joule [0.60 lb/million Btu] heat input:

$$E_{SO_2} = [340 x + 520 y]/100$$

$$P_{SO_2} = [90 x + 70 y]/100$$

where:

E_{SO_2} = the prorated sulfur dioxide emission limited (ng/j heat input),

P_{SO_2} = the percentage of potential sulfur dioxide emission allowed (percent reduction required = $100 - P_{SO_2}$).

x = the percentage of total heat input derived from the combustion of liquid or gaseous fuels (excluding solid-derived fuels).

y = the percentage of total heat input derived from the combustion of solid fuel (including solid-derived fuels).

e. Standard for nitrogen oxides.

(1) On and after the date on which the initial performance test required to be conducted under subsection 7 of section 33-15-12-01 is completed, no owner or operator subject to the provisions of this subsection ~~shall~~ may cause to be discharged into the atmosphere from any affected facility, except as provided under paragraph 2, any gases which contain nitrogen oxides in excess of the following emission limits, based on a thirty-day rolling average.

(a) Nitrogen oxide emission limits.

Fuel type	Emission limit ng/j (lb/million Btu) heat input	
Gaseous Fuels:		
Coal-derived fuels	210	(0.50)
All other fuels	86	(0.20)
Liquid Fuels:		
Coal-derived fuels	210	(0.50)
Shale oil	210	(0.50)
All other fuels	130	(0.30)
Solid Fuels:		

Coal-derived fuels	210	(0.50)
Any fuel containing more than 25%, by weight, coal refuse	Exempt from NO ₂ standards and NO ₂ monitoring requirements	
Any fuel containing more than 25% by weight, lignite if the lignite is mined in North Dakota, South Dakota, or Montana, and is combusted in a slag tap furnace	340	(0.80)
Lignite not subject to the 340 ng/j heat input emission limit .	260	(0.60)
Subbituminous coal	210	(0.50)
Bituminous coal	260	(0.60)
Anthracite coal	260	(0.60)
All other fuels	260	(0.60)

(b) Nitrogen oxide reduction requirements.

Fuel type	Percent reduction of potential combustion concentration
Gaseous fuels	25%
Liquid fuels	30%
Solid fuels	65%

- (2) The emission limitations under subparagraph a do not apply to any affected facility which is combusting coal-derived liquid fuel and is operating under a commercial demonstration permit issued by the administrator of the United States environmental protection agency.
- (3) When two or more fuels are combusted simultaneously, the applicable standard is determined by proration using the following formula:

$$E_{NO_2} = [86 w + 130 x + 210 y + 260 z]/100$$

where:

E_{NO_2} = the applicable standard for nitrogen oxides when multiple fuels are combusted

simultaneously (ng/j heat input).

w = the percentage of total heat input derived from the combustion of fuels subject to the eighty-six nanograms per joule heat input standards.

x = the percentage of total heat input derived from the combustion of fuels subject to the one hundred thirty nanograms per joule heat input standard.

y = the percentage of total heat input derived from the combustion of fuels subject to the two hundred ten nanograms per joule heat input standards.

z = the percentage of total heat input derived from the combustion of fuels subject to the two hundred sixty nanograms per joule heat input standard.

f. Compliance provisions.

- (1) Compliance with the particulate matter emission limitation under subparagraph a of paragraph 1 of subdivision c constitutes compliance with the percent reduction requirements for particulate matter under subparagraphs b and c of paragraph 1 of subdivision c.
- (2) Compliance with the nitrogen oxides emission limitation under paragraph 1 of subdivision e constitutes compliance with the percent reduction requirements under subparagraph b of paragraph 1 of subdivision e.
- (3) The particulate matter emission standards under subdivision c and the nitrogen oxides emission standards under subdivision e apply at all times except during periods of startup, shutdown, or malfunction. The sulfur dioxide emission standards under subdivision d apply at all times except during periods of startup, shutdown, or when both emergency conditions exist and the procedures under paragraph 4 are implemented.
- (4) During emergency conditions in the principal company, an affected facility with a malfunctioning flue gas desulfurization system may be operated if sulfur dioxide emissions are minimized by:

- (a) Operating all operable flue gas desulfurization system modules, and bringing back into operation any malfunctioned module as soon as repairs are completed.
- (b) Bypassing flue gases around only those flue gas desulfurization system modules that have been taken out of operation because they were incapable of any sulfur dioxide emission reduction or which would have suffered significant physical damage if they had remained in operation.
- (c) Designing, constructing, and operating a spare flue gas desulfurization system module for an affected facility larger than three hundred sixty-five megawatts [1250 million Btu/hr] heat input (approximately one hundred twenty-five megawatts electrical output capacity). The department may at its discretion require the owner or operator within sixty days of notification to demonstrate spare module capability. To demonstrate this capability, the owner or operator must demonstrate compliance with the appropriate requirements under paragraphs 1, 2, 4, and 7 of subdivision d for any period of operation lasting from twenty-four hours to thirty days when:
 - [1] Any one flue gas desulfurization module is not operated;
 - [2] The affected facility is operating at the maximum heat input rate;
 - [3] The fuel fired during the twenty-four-hour to thirty-day period is representative of the type and average sulfur content of fuel used over a typical thirty-day period; and
 - [4] The owner or operator has given the department at least thirty days' notice of the date and period of time over which the demonstration will be performed.
- (5) After the initial performance test required under subsection 7 of section 33-15-12-01, compliance with the sulfur dioxide emission limitations and percentage reduction requirements under subdivision d and the nitrogen oxides emission limitations under subdivision c is based on the average emission rate for thirty successive boiler operating days. A separate performance evaluation based on continuous

emission monitoring data ~~shall~~ must be completed at the end of each boiler operating day after the initial performance test, and a new thirty-day average emission rate for both sulfur dioxide and nitrogen oxides and a new percent reduction for sulfur dioxide are calculated to show compliance with the standards.

- (6) For the initial performance test required under subsection 7 of section 33-15-12-01, compliance with the sulfur dioxide emission limitations and percent reduction requirements under subdivision d and the nitrogen oxides emission limitation under subdivision e is based on the average emission rates for sulfur dioxide, nitrogen oxides, and percent reduction for sulfur dioxide for the first thirty successive boiler operating days. The initial performance test is the only test in which at least thirty days' prior notice is required unless otherwise specified by the department. The initial performance test is to be scheduled so that the first boiler operating day of the thirty successive boiler operating days is completed within sixty days after achieving the maximum production rate at which the affected facility will be operated, but not later than one hundred eighty days after initial startup of the facility.
- (7) Compliance is determined by calculating the arithmetic average of all hourly emission rates for sulfur dioxide and nitrogen oxide for the thirty successive boiler operating days, except for data obtained during startup, shutdown, malfunction (nitrogen oxide only), or emergency conditions (sulfur dioxide only). Compliance with the percentage reduction requirements for sulfur dioxide is determined based on the average inlet and average outlet sulfur dioxide emission rates for the thirty successive boiler operating days.
- (8) If an owner or operator has not obtained the minimum quantity of emission data as required under subdivision g, compliance of the affected facility with the emission requirements under subdivision d and subdivision c for the day on which the thirty-day period ends may be determined by the department by following the applicable procedures in sections 6.0 and 7.0 of Reference Method reference method 19.

g. Emission monitoring.

- (1) The owner or operator of an affected facility shall install, calibrate, maintain, and operate a

continuous monitoring system, and record the output of the system, for measuring the opacity of emissions discharged to the atmosphere, except where gaseous fuel is the only fuel combusted. If opacity interference due to water droplets exists in the stack, e.g., from the use of ~~an~~ a flue gas desulfurization system, the opacity is monitored upstream of the interference (at the inlet to the flue gas desulfurization system). If opacity interference is experienced at all locations (both at the inlet and outlet of the sulfur dioxide control system), alternate parameters indicative of the particulate matter control system's performance are monitored (subject to the approval of the department).

- (2) The owner or operator of an affected facility shall install, calibrate, maintain, and operate a continuous monitoring system, and record the output of the system, for measuring sulfur dioxide emissions, except where natural gas is the only fuel combusted, as follows:
 - (a) Sulfur dioxide emissions are monitored at both the inlet and outlet of the sulfur dioxide control device.
 - (b) For a facility which qualifies under the provisions of paragraph 4 of subdivision d, sulfur dioxide emissions are only monitored as discharged to the atmosphere.
 - (c) An "as fired" fuel monitoring system (upstream of coal pulverizers) meeting the requirements of ~~Method~~ method 19 may be used to determine potential sulfur dioxide emissions in place of a continuous sulfur dioxide emission monitor at the inlet to the sulfur dioxide control device as required under subparagraph a.
- (3) The owner or operator of an affected facility shall install, calibrate, maintain, and operate a continuous monitoring system, and record the output of the system, for measuring nitrogen oxides emissions discharged to the atmosphere.
- (4) The owner or operator of an affected facility shall install, calibrate, maintain, and operate a continuous monitoring system, and record the output of the system, for measuring the oxygen or carbon dioxide content of the flue gases at each location where sulfur dioxide or nitrogen oxides emissions are monitored.

- (5) The continuous monitoring systems under paragraphs 2, 3, and 4 are operated and data recorded during all periods of operation of the affected facility including periods of startup, shutdown, malfunction, or emergency conditions, except for continuous monitoring system breakdowns, repairs, calibration checks, and zero and span adjustments.
- (6) When emission data are not obtained because of continuous monitoring system breakdowns, repairs, calibration checks, and zero and span adjustments, emission data will be obtained by using other monitoring systems as approved by the department or the reference methods as described in paragraph 8 to provide emission data for a minimum of eighteen hours in at least twenty-two out of thirty successive boiler operating days.
- (7) The one-hour averages required under subdivision h of subsection 11 of section 33-15-12-01 are expressed in nanograms per joule [lbs/million Btu] heat input and used to calculate the average emission rates under subdivision f. The one-hour averages are calculated using the data points required under subdivision b of subsection 11 of section 33-15-12-01. At least two data points must be used to calculate the one-hour average.
- (8) Reference methods used to supplement continuous monitoring system data to meet the minimum data requirements in paragraph 6 will be used as specified below or otherwise approved by the department.
 - (a) Reference Methods 3, or 3A, 6, or 6C, and 7 7A, 7C, 7D, or 7E, as applicable, are used. Method 6B may be used whenever methods 6 or 6C and 3 or 3A data are required to determine the sulfur dioxide emission rate in nanograms per joule. The sampling locations are the same as those used specified for the continuous emission monitoring system.
 - (b) For ~~Method~~ method 6, the minimum sampling time is twenty minutes and the minimum sampling volume is 0.02 dry cubic meter at standard conditions [0.71 dscf] for each sample. Samples are taken at approximately sixty-minute intervals. Each sample represents a one-hour average.
 - (c) For ~~Method~~ method 7 or 7A, samples are taken at approximately thirty-minute intervals. The arithmetic average of these two consecutive

samples ~~represent~~ represents a one-hour average. For method 7C or 7D, each run shall consist of a one-hour sample.

- (d) For Method method 3, the oxygen or carbon dioxide sample is to be taken for each hour when continuous sulfur dioxide and nitrogen oxide data are taken or when Methods methods 6 or 6C and 7, 7A, 7C, 7D, or 7E are required. Each sample ~~shall~~ must be taken for a minimum of thirty minutes in each hour using the integrated bag method specified in Method method 3. Each sample represents a one-hour average.
- (e) For each one-hour average, the emissions expressed in nanograms per joule [lb/million Btu] heat input are determined and used as needed to achieve the minimum data requirements of paragraph 6.
- (f) The following procedures are used to conduct monitoring system performance evaluations under subdivision c and calibration checks under subdivision d of subsection 11 of section 33-15-12-01.

[1] Reference Method Method 6 or, 6C, 7, 7A, 7C, 7D, or 7E, as applicable, is used for conducting performance evaluations of sulfur dioxide and nitrogen oxides continuous monitoring systems.

[2] Sulfur dioxide or nitrogen oxides, as applicable, is used for preparing calibration gas mixtures under performance specification 2 of ~~Appendix~~ appendix B to this chapter.

[3] For affected facilities burning only fossil fuel, the span value for a continuous monitoring system for measuring opacity is between sixty and eighty percent and for a continuous monitoring system measuring nitrogen oxides is determined as follows:

Fossil fuel	Span value for nitrogen oxides (ppm)
Gas	500
Liquid	500

Solid	1000
Combination	500 (x+y)+1000z

where:

x = the fraction of total heat input derived from gaseous fossil fuel.

y = the fraction of total heat input derived from liquid fossil fuel.

z = the fraction of total heat input derived from solid fossil fuel.

[4] All span values computed under item 3 for burning combinations of fossil fuels are rounded to the nearest five hundred parts per million.

[5] For affected facilities burning fossil fuel, alone or in combination with nonfossil fuel, the span value of the sulfur dioxide continuous monitoring system at the inlet to the sulfur dioxide control device is one hundred twenty-five percent of the maximum estimated hourly potential emissions of the fuel fired, and the outlet of the sulfur dioxide control device is fifty percent of maximum estimated hourly potential emissions of the fuel fired.

h. Compliance determination procedures and methods.

(1) The following procedures and reference methods are used to determine compliance with the standards for particulate matter under subdivision c.

(a) Method 3 or 3A is used for gas analysis when applying ~~Method~~ method 5 or 17.

(b) Method 5 is used for determining particulate matter emissions and associated moisture content. Method 17 may be used for stack gas temperatures less than one hundred sixty degrees centigrade [320 degrees Fahrenheit].

(c) For ~~Method~~ method 5 or 17, ~~Method~~ method 1 is used to select the sampling site and the number of traverse sampling points. The sampling time for each run is at least one hundred twenty minutes and the minimum sampling volume is 1.7 dry cubic meters at standard conditions [60

dscf] except that smaller sampling times or volumes, when necessitated by process variables or other factors, may be approved by the department.

- (d) For Method method 5, the probe and filter holder heating system in the sampling train is set to provide a gas temperature no greater than one hundred sixty degrees centigrade [320 degrees Fahrenheit].
 - (e) For determination of particulate emissions, the oxygen or carbon dioxide sample is obtained simultaneously with each run of Method method 5 or 17 by traversing the duct at the same sampling location. Method 1 is used for selection of the number of traverse points except that no more than twelve sample points are required.
 - (f) For each run using Method method 5 or 17, the emission rate expressed in nanograms per joule heat input is determined using the oxygen or carbon dioxide and particulate matter measurements obtained under this paragraph, the dry basis F_c factor and the dry basis emission rate calculation procedure contained in Method method 19.
 - (g) Prior to the issuance of a particulate matter reference method that does not experience sulfuric acid mist interference problems, particulate matter emissions may be sampled prior to a wet flue gas desulfurization system.
- (2) The following procedures and methods are used to determine compliance with the sulfur dioxide standards under subdivision d.
- (a) Determine the percent of potential combustion concentration (percent PCC) emitted to the atmosphere as follows:

[1] ~~Fuel Pretreatment~~ pretreatment (% R_f):

Determine the percent reduction achieved by any fuel pretreatment using the procedures in Method method 19. Calculate the average percent reduction for fuel pretreatment on a quarterly basis using fuel analysis data. The determination of percent R_f to calculate the percent of potential combustion concentration emitted to the atmosphere is optional. For

purposes of determining compliance with any percent reduction requirements under subdivision d, any reduction in potential sulfur dioxide emissions resulting from the following processes may be credited:

- [a] Fuel pretreatment (physical coal cleaning, hydrodesulfurization of fuel oil, etc.).
 - [b] Coal pulverizers.
 - [c] Bottom and fly ash interactions.
- [2] Sulfur Dioxide Control System dioxide control system (% R_g): Determine the percent sulfur dioxide reduction achieved by any sulfur dioxide control system using emission rates measured before and after the control system, following the procedures in Method method 19; or, a combination of an "as fired" fuel monitor and emission rates measured after the control system, following the procedures in Method method 19. When the "as fired" fuel monitor is used, the percent reduction is calculated using the average emission rate from the sulfur dioxide control device and the average sulfur dioxide input rate from the "as fired" fuel analysis for thirty successive boiler operating days.
- [3] Overall Percent Reduction percent reduction (% R_o): Determine the overall percent reduction using the results obtained in items 1 and 2 following the procedures in Method method 19. Results are calculated for each thirty-day period using the quarterly average percent sulfur reduction determined for fuel pretreatment from the previous quarter and a sulfur dioxide control system for each thirty-day period in the current quarter.
- [4] Percent Emitted emitted (% PCC): Calculate the percent of potential combustion concentration emitted to the atmosphere using the following equation:
Percent PCC = 100-Percent R_o .
- (b) Determine the sulfur dioxide emission rates following the procedures in Method method 19.

- (3) The procedures and methods outlined in Method method 19 are used in conjunction with the thirty-day nitrogen oxides emission data collected under subdivision h to determine compliance with the applicable nitrogen oxides standard under subdivision e.
- (4) Electric utility combined cycle gas turbines are performance tested for particulate matter, sulfur dioxide, and nitrogen oxides using the procedures of Method method 19. The sulfur dioxide and nitrogen oxides emission rates from the gas turbine used in Method method 19 calculations are determined when the gas turbine is performance tested under subsection 28. The potential uncontrolled particulate matter emission rate from a gas turbine is defined as seventeen nanograms per joule [0.04 lb/million Btu] heat input.

i. Reporting requirements.

- (1) For sulfur dioxide, nitrogen oxides, and particulate matter emissions, the performance test data from the initial performance test and from the performance evaluation of the continuous monitors (including the transmissometer) are submitted to the department.
- (2) For sulfur dioxide and nitrogen oxides the following information is reported to the department for each twenty-four-hour period.
 - (a) Calendar date.
 - (b) The average sulfur dioxide and nitrogen oxide emission rates (nanogram per joule or pound per million British thermal units) for each thirty successive boiler operating days, ending with the last thirty-day period in the quarter; reasons for noncompliance with the emission standards; and description of corrective actions taken.
 - (c) Percent reduction of the potential combustion concentration of sulfur dioxide for each thirty successive boiler operating days, ending with the last thirty-day period in the quarter; reasons for noncompliance with the standard; and description of corrective actions taken.
 - (d) Identification of the boiler operating days for which pollutant or diluent data have not been obtained by an approved method for at least eighteen hours of operation of the facility;

justification for not obtaining sufficient data; and description of corrective actions taken.

- (e) Identification of the times when emissions data have been excluded from the calculation of average emission rates because of startup, shutdown, malfunction (nitrogen oxide only), emergency conditions (sulfur dioxide only), or other reasons, and justification for excluding data for reasons other than startup, shutdown, malfunction, or emergency conditions.
 - (f) Identification of "F" factor used for calculations, method of determination, and type of fuel combusted.
 - (g) Identification of times when hourly averages have been obtained based on manual sampling methods.
 - (h) Identification of the times when the pollutant concentration exceeded full span of the continuous monitoring system.
 - (i) Description of any modifications to the continuous monitoring system which could affect the ability of the continuous monitoring system to comply with performance specifications 2 or 3.
- (3) If the minimum quantity of emission data as required by subdivision g is not obtained for any thirty successive boiler operating days, the following information obtained under the requirements of paragraph 8 of subdivision f is reported to the department for that thirty-day period:
- (a) The number of hourly averages available for outlet emission rates (n_0) and inlet emission rates (n_1) as applicable.
 - (b) The standard deviation of hourly averages for outlet emission rates (s_0) and inlet emission rates (s_1) as applicable.
 - (c) The lower confidence limit for the mean outlet emission rate (E_0^*) and the upper confidence limit for the mean inlet emission rate (E_1^*) as applicable.
 - (d) The applicable potential combustion concentration.

- (e) The ratio of the upper confidence limit for the mean outlet emission rate (E_o^*) and the allowable emission rate (E_{std}) as applicable.
- (4) If any standards under subdivision d are exceeded during emergency conditions because of control system malfunction, the owner or operator of the affected facility shall submit a signed statement:
- (a) Indicating if emergency conditions existed and requirements under paragraph 4 of subdivision f were met during each period; and
 - (b) Listing the following information:
 - [1] Time periods the emergency condition existed.
 - [2] Electrical output and demand on the owner's or operator's electric utility system and the affected facility.
 - [3] Amount of power purchased from interconnected neighboring utility companies during the emergency period.
 - [4] Percent reduction in emissions achieved.
 - [5] Atmospheric emission rate (nanogram per joule) of the pollutant discharged.
 - [6] Actions taken to correct control system malfunction.
- (5) If fuel pretreatment credit toward the sulfur dioxide emission standard under subdivision d is claimed, the owner or operator of the affected facility shall submit a signed statement:
- (a) Indicating what percentage cleaning credit was taken for the calendar quarter, and whether the credit was determined in accordance with the provisions of subdivision h and method 19; and
 - (b) Listing the quantity, heat content, and date each pretreated fuel shipment was received during the previous quarter; the name and location of the fuel pretreatment facility; and the total quantity and total heat content of all fuels received at the affected facility during the previous quarter.

- (6) For any periods for which opacity, sulfur dioxide or nitrogen oxides emissions data are not available, the owner or operator of the affected facility shall submit a signed statement indicating if any changes were made in operation of the emission control system during the period of data unavailability. Operations of the control system and affected facility during periods of data unavailability are to be compared with operation of the control system and affected facility before and following the period of data unavailability.
- (7) The owner or operator of the affected facility shall submit a signed statement indicating whether:
 - (a) The required continuous monitoring system calibration, span, and drift checks or other periodic audits have or have not been performed as specified.
 - (b) The data used to show compliance was or was not obtained in accordance with approved methods and procedures of this part and is representative of plant performance.
 - (c) The minimum data requirements have or have not been met; or the minimum data requirements have not been met for errors that were unavoidable.
 - (d) Compliance with the standards has or has not been achieved during the reporting period.
- (8) For the purposes of the reports required under subsection 6 of section 33-15-12-01, periods of excess emissions are defined as all six-minute periods during which the average opacity exceeds the applicable opacity standards under paragraph 2 of subdivision c. Opacity levels in excess of the applicable opacity standard and the date of such excesses are to be submitted to the department each calendar quarter.
- (9) The owner or operator of an affected facility shall submit the written reports required under this subdivision and section 33-15-12-01 to the department for every calendar quarter. All quarterly reports ~~shall~~ must be postmarked by the thirtieth day following the end of each calendar quarter.

3. Standards of performance for portland cement plants.

- a. Applicability and designation of affected facility. The provisions of this subsection are applicable to the

following affected facilities in portland cement plants: kiln, clinker cooler, raw mill system, finish mill system, raw mill dryer, raw material storage, clinker storage, conveyor transfer points, bagging and bulk loading and unloading systems. Any facility that commences construction or modification after August 17, 1971, is subject to the requirements of this subsection.

b. Definitions. As used in this subsection, all terms not defined herein shall have the meaning given them in North Dakota Century Code chapter 23-25 and in subsection 2 of section 33-15-12-01.

(1) "Portland cement plant" means any facility manufacturing portland cement by either the wet or dry process.

c. Standard for particulate matter.

(1) On and after the date on which the performance test required to be conducted by subsection 7 of section 33-15-12-01 is completed, no owner or operator subject to the provisions of this subsection ~~shall~~ may cause to be discharged into the atmosphere from any kiln any gases which:

(a) Contain particulate matter in excess of fifteen-hundredths kilogram per metric ton [0.30 pound per ton] of feed (dry basis) to the kiln.

(b) Exhibit greater than ten percent opacity.

(2) On and after the date on which the performance test required to be conducted by subsection 7 of section 33-15-12-01 is completed, no owner or operator subject to the provisions of this subsection ~~shall~~ may cause to be discharged into the atmosphere from any clinker cooler any gases which:

(a) Contain particulate matter in excess of five-hundredths kilogram per metric ton [0.10 pound per ton] of feed (dry basis) to the kiln.

(b) Exhibit ten percent opacity, or greater.

(3) On and after the date on which the performance test required to be conducted by subsection 7 of section 33-15-12-01 is completed, no owner or operator subject to the provisions of this subsection ~~shall~~ may cause to be discharged into the atmosphere from any affected facility, other than the kiln and clinker cooler, any gases which exhibit ten percent opacity or greater.

d. Monitoring of operations. The owner or operator of any portland cement plant subject to the provisions of this subsection shall record the daily production rates and kiln feed rates.

e. Test methods and procedures.

(1) The reference methods in ~~Appendix~~ appendix A to this chapter, except as provided for in subdivision b of subsection 7 of section 33-15-12-01, ~~shall~~ must be used to determine compliance with the standards prescribed in subdivision c as follows:

(a) Method 5 for the concentration of particulate matter and the associated moisture content.

(b) Method 1 for sample and velocity traverses.

(c) Method 2 for velocity and volumetric flow rate.

(d) Method 3 for gas analysis.

(2) For ~~Method~~ method 5, the minimum sampling time and minimum sample volume for each run, except when process variables or other factors justify otherwise to the satisfaction of the department, shall be as follows:

(a) Sixty minutes and 0.85 dry cubic meter at standard conditions [30.0 dscf] for the kiln.

(b) Sixty minutes and 1.15 dry cubic meters at standard conditions [40.6 dscf] for the clinker cooler.

(3) Total kiln feed rate (except fuels), expressed in metric tons per hour on a dry basis, ~~shall~~ must be determined during each testing period by suitable methods; and ~~shall~~ must be confirmed by a material balance over the production system.

(4) For each run, particulate matter emissions, expressed in grams per metric ton of kiln feed, ~~shall~~ must be determined by dividing the emission rate in grams per hour by the kiln feed rate. The emission rate ~~shall~~ must be determined by the equation, $g/hr = Q_s \times c$, where Q_s = volumetric flow rate of the total effluent in dscm/hr as determined in accordance with subparagraph c of paragraph 1 and c = particulate concentration in g/dscm as determined in accordance with paragraph 1.

4. Standards of performance for nitric acid plants.

- a. Applicability and designation of affected facility. The provisions of this subsection are applicable to each nitric acid production unit, which is the affected facility. Any facility that commences construction or modification after August 17, 1971, is subject to the requirements of this subsection.
- b. Definitions. As used in this subsection, all terms not defined herein shall have the meaning given them in North Dakota Century Code chapter 23-25 and in subsection 2 of section 33-15-12-01.
 - (1) "Nitric acid production unit" means any facility producing weak nitric acid by either the pressure or atmospheric pressure process.
 - (2) "Weak nitric acid" means acid which is thirty to seventy percent in strength.
- c. Standard for nitrogen oxides. On and after the date on which the performance test required to be conducted by subsection 7 of section 33-15-12-01 is completed, no owner or operator subject to the provisions of this subsection shall cause to be discharged into the atmosphere from any affected facility any gases which:
 - (1) Contain nitrogen oxides, expressed as nitrogen dioxide, in excess of one and five-tenths kilograms per metric ton [3.0 pounds per ton] of acid produced, the production being expressed as one hundred percent nitric acid.
 - (2) Exhibit ten percent opacity, or greater.
- d. Emission monitoring.
 - (1) A continuous monitoring system for the measurement of nitrogen oxides ~~shall~~ must be installed, calibrated, maintained, and operated by the owner or operator. The pollutant gas used to prepare calibration gas mixtures under paragraph 2.1, **Performance Specification** performance specification 2 and for calibration checks under subdivision d of subsection 11 of section 33-15-12-01 ~~shall~~ must be nitrogen dioxide. The span ~~shall~~ must be set at five hundred parts per million of nitrogen dioxide. Reference ~~Method~~ method 7 ~~shall~~, 7A, 7B, 7C, or 7D must be used for conducting monitoring system performance evaluations under subdivision c of subsection 11 of section 33-15-12-01.
 - (2) The owner or operator shall establish a conversion factor for the purpose of converting monitoring data

into units of the applicable standard (kilograms per metric ton, pounds per short ton). The conversion factor ~~shall~~ must be established by measuring emissions with the continuous monitoring system concurrent with measuring emissions with the applicable reference method tests. Using only that portion of the continuous monitoring emission data that represents emission measurements concurrent with the reference method test periods, the conversion factor ~~shall~~ must be determined by dividing the reference method test data averages by the monitoring data averages to obtain a ratio expressed in units of the applicable standard to units of the monitoring data, i.e., kilograms per metric ton per parts per million [pounds per short ton per parts per million]. The conversion factor ~~shall~~ must be reestablished during any performance test under subsection 7 of section 33-15-12-01 or any continuous monitoring system performance evaluation under subdivision c of subsection 11 of section 33-15-12-01.

- (3) The owner or operator shall record the daily production rate and hour of operation.
- (4) [Reserved]
- (5) For the purpose of reports required under subdivision c of subsection 6 of section 33-15-12-01, periods of excess emissions that ~~shall~~ must be reported are defined as any three-hour period during which the average nitrogen oxides emissions (arithmetic average of three contiguous one-hour periods) as measured by a continuous monitoring system exceed the standard under subdivision c.

e. Test methods and procedures.

- (1) The reference methods in ~~Appendix~~ appendix A to this chapter, except as provided for in subdivision b of subsection 7 of section 33-15-12-01, ~~shall~~ must be used to determine compliance with the standard prescribed in paragraph 3 as follows:
 - (a) Method 7, 7A, 7B, 7C, or 7D for the concentration of nitrogen oxides.
 - (b) Method 1 for sample and velocity traverses.
 - (c) Method 2 for velocity and volumetric flow rate.
 - (d) Method 3 for gas analysis.

- (2) For ~~Method~~ method 7, 7A, 7B, or 7D, the sample site ~~shall~~ must be selected according to ~~Method~~ method 1 and the sampling point ~~shall~~ must be the centroid of the stack or duct or at a point no closer to the walls than one meter [3.28 feet]. ~~Each~~ For ~~method 7, 7A, or 7B, each~~ run shall consist of at least four grab samples taken at approximately fifteen-minute intervals. The arithmetic mean of the samples shall constitute the run value. For method 7C or 7D, each run shall consist of a one-hour sample. A velocity traverse ~~shall~~ must be performed once per run.
- (3) Acid production rate, expressed in metric tons per hour of one hundred percent nitric acid, ~~shall~~ must be determined during each testing period by suitable methods and ~~shall~~ must be confirmed by a material balance over the production system.
- (4) For each run, nitrogen oxides, expressed in grams per metric ton of one hundred percent nitric acid, ~~shall~~ must be determined by dividing the emission rate in grams per hour by the acid production rate. The emission rate ~~shall~~ must be determined by the equation:

$$g/hr = Q_s \times c$$

where:

Q_s = volumetric flow rate of the effluent
in dscm/hr, as determined in accordance
with subparagraph c of paragraph 1 and
 $c = NO_x$ concentration in g/dscm,
as determined in accordance with
subparagraph a of paragraph 1.

5. Standards of performance for sulfuric acid plants.

- a. Applicability and designation of affected facility. The provisions of this subsection are applicable to each sulfuric acid production unit, which is the affected facility. Any facility that commences construction or modification after August 17, 1971, is subject to the requirements of this subsection.
- b. Definitions. As used in this subsection, all terms not defined herein shall have the meaning given them in North Dakota Century Code chapter 23-25 and in subsection 2 of section 33-15-12-01.

- (1) "Acid mist" means sulfuric acid mist, as measured by Method method 8 of Appendix appendix A to this chapter or an equivalent or alternative method.
 - (2) "Sulfuric acid production unit" means any facility producing sulfuric acid by the contact process by burning elemental sulfur, alkylation acid, hydrogen sulfide, organic sulfides and mercaptans, or acid sludge, but does not include facilities where conversion to sulfuric acid is utilized primarily as a means of preventing emissions to the atmosphere of sulfur dioxide or other sulfur compounds.
- c. Standard for sulfur dioxide. On and after the date on which the performance test required to be conducted by subsection 7 of section 33-15-12-01 is completed, no owner or operator subject to the provisions of this subsection ~~shall~~ may cause to be discharged into the atmosphere from any affected facility any gases which contain sulfur dioxide in excess of two kilograms per metric ton [4 pounds per ton] of acid produced, the production being expressed as one hundred percent sulfuric acid.
- d. Standard for acid mist. On and after the date on which the performance test required to be conducted by subsection 7 of section 33-15-12-01 is completed, no owner or operator subject to the provisions of this subsection ~~shall~~ may cause to be discharged into the atmosphere from any affected facility any gases which:
- (1) Contain acid mist, expressed as sulfuric acid, in excess of seventy-five-thousandths kilogram per metric ton [0.15 pound per ton] of acid produced, the production being expressed as one hundred percent sulfuric acid.
 - (2) Exhibit ten percent opacity, or greater.
- e. Emission monitoring.
- (1) A continuous monitoring system for the measurement of sulfur dioxide ~~shall~~ must be installed, calibrated, maintained, and operated by the owner or operator. The pollutant gas used to prepare calibration gas mixtures under paragraph 2-17, Performance Specification performance specification 2 and for calibration checks under subdivision d of subsection 11 of section 33-15-12-01 shall be sulfur dioxide. Reference Method method 8 ~~shall~~ must be used for conducting monitoring system performance evaluations under subdivision c of subsection 11 of section 33-15-12-01 except that only the sulfur dioxide portion of the Method method 8 results shall be

used. The span ~~shall~~ must be set at one thousand parts per million of sulfur dioxide.

- (2) The owner or operator shall establish a conversion factor for the purpose of converting monitoring data into units of the applicable standard (kilograms per metric ton, pounds per short ton). The conversion factor ~~shall~~ must be determined, as a minimum, three times daily by measuring the concentration of sulfur dioxide entering the converter using suitable methods, e.g., the Reich test, national air pollution control administration Publication No. 999-AP-13, and calculating the appropriate conversion factor for each eight-hour period as follows:

$$CF = k \left(\frac{1.000 - 0.015r}{r - s} \right)$$

where:

CF = conversion factor (kg/metric ton per ppm, lb/short ton per ppm).

k = constant derived from material balance. For determining CF in metric units, k = 0.0653, for determining CF in English units, k = 0.1306.

r = percentage of sulfur dioxide by volume entering the gas converter. Appropriate corrections must be made for air injection plants subject to the department's approval.

s = percentage of sulfur dioxide by volume in the emissions to the atmosphere determined by the continuous monitoring system required under paragraph 1.

- (3) The owner or operator shall record all conversion factors and values under paragraph 2 from which they were computed, i.e., CF, r, and s.
- (4) ~~{Reserved}~~ Alternatively, a source that processes elemental sulfur or an ore that contains elemental sulfur and uses air to supply oxygen may use the following continuous emission monitoring approach and calculation procedures in determining sulfur dioxide emission rates in terms of the standard. This procedure is not required, but is an alternative that would alleviate problems encountered in the measurement of gas velocities or production rate. Continuous emission monitoring of sulfur dioxide,

oxygen, and carbon dioxide (if required) must be installed, calibrated, maintained, and operated by the owner or operator and subjected to the certification procedures in performance specifications 2 and 3. The calibration procedure and span value for this sulfur dioxide monitor must be as specified in paragraph 2 of this subdivision. The span value for carbon dioxide (if required) shall be ten percent and for oxygen shall be 20.9 percent (air). A conversion factor based on process rate data is not necessary. Calculate the sulfur dioxide emission rate as follows:

$$E_{SO_2} = C_{SO_2} S \frac{1}{0.265 \cdot 0.0126(O_2) \cdot A(CO_2)}$$

where:

$$E_{SO_2} = \text{SO}_2 \text{ emission rate kg/metric ton acid (lb/ton acid).}$$

$$C_{SO_2} = \text{SO}_2 \text{ concentration kg/dscm (lb/dscf) (see table below).}$$

$$S = \text{Acid production rate factor.}$$

$$= 368 \text{ dscm/metric ton acid for metric units.}$$

$$= 11800 \text{ dscf/ton acid for English units.}$$

$$O_2 = \text{O}_2 \text{ concentration, percent.}$$

$$A = \text{Auxiliary fuel factor.}$$

$$= 0.00 \text{ for no fuel.}$$

$$= 0.0226 \text{ for methane.}$$

$$= 0.0217 \text{ for natural gas.}$$

$$= 0.0196 \text{ for propane.}$$

$$= 0.0172 \text{ for number 2 oil.}$$

$$= 0.0161 \text{ for number 6 oil.}$$

$$= 0.0148 \text{ for coal.}$$

$$= 0.0126 \text{ for coke.}$$

$$CO_2 = \text{CO}_2 \text{ concentration, percent.}$$

Note: It is necessary in some cases to convert measured concentration units to other units for these calculations:

Use the following table for such conversions:

From	To	Multiply by
g/scm	kg/scm	10^{-3}
mg/scm	kg/scm	10^{-6}
ppm (SO ₂)	kg/scm	$2,660 \times 10^{-6}$
ppm (SO ₂)	lb/scf	$1,660 \times 10^{-7}$

(5) For the purpose of reports under subdivision c of subsection 6 of section 33-15-12-01, periods of excess emissions ~~shall~~ must be all three-hour periods (or the arithmetic average of three consecutive one-hour periods) during which the integrated average sulfur dioxide emissions exceed the applicable standards under subdivision c of subsection 5 ~~of this section~~.

f. Test methods and procedures.

(1) The reference methods in ~~Appendix~~ appendix A to this chapter, except as provided for in subdivision b of subsection 7 of section 33-15-12-01, ~~shall~~ must be used to determine compliance with the standards prescribed in subdivisions c and d of this subsection as follows:

(a) Method 8 for the concentrations of sulfur dioxide and acid mist.

(b) Method 1 for sample and velocity traverses.

(c) Method 2 for velocity and volumetric flow rate.

(d) Method 3 for gas analysis.

(2) The moisture content can be considered to be zero for ~~Method method 8 the~~. The sampling time for each run ~~shall~~ must be at least sixty minutes and the minimum sample volume ~~shall~~ must be 1.15 dry cubic meters at standard conditions [40.6 dscf] except that smaller sampling times or sample volumes, when necessitated by process variables or other factors, may be approved by the department.

(3) Acid production rate, expressed in metric tons per hour of one hundred percent sulfuric acid, ~~shall~~ must be determined during each testing period by suitable methods and ~~shall~~ must be confirmed by a material balance over the production system.

(4) Acid mist and sulfur dioxide emissions, expressed in grams per metric ton of one hundred percent sulfuric acid, ~~shall~~ must be determined by dividing the emission rate in grams per hour by the acid production rate. The emission rate ~~shall~~ must be

determined by the equation, $g/hr = Q_s xc$, where Q_s = volumetric flow rate of the effluent in dscm/hr as determined in accordance with subparagraph c of paragraph 1 and c = acid mist and sulfur dioxide concentrations in g/dscm as determined in accordance with subparagraph a of paragraph 1.

(5) Alternatively, a source that processes elemental sulfur or an ore that contains elemental sulfur uses air to supply oxygen may use the sulfur dioxide, acid mist, oxygen, and carbon dioxide (if required) measurement data in determining sulfur dioxide and acid mist emission rates in terms of the standard. Data from the reference method tests as specified in paragraph 1 of this subdivision are required; that is, method 8 for sulfur dioxide and acid mist and method 3 for oxygen and carbon dioxide. No determinations of production rate or total gas flow rate are necessary. Calculate the sulfur dioxide and acid mist emission rate as described in paragraph 4 of subdivision e substituting the acid mist concentration for C_{SO_2} as appropriate.

6. Standards of performance for asphalt concrete plants.

- a. Applicability and designation of affected facility. The affected facility to which the provisions of this subsection apply is each asphalt concrete plant. For the purpose of this subsection, an asphalt concrete plant is comprised only of any combination of the following: dryers; systems for screening, handling, storing, and weighing hot aggregate; systems for loading, transferring, and storing mineral filler; systems for mixing asphalt concrete; and the loading, transfer, and storage systems associated with emission control systems. Any facility that commences construction or modification after June 11, 1973, is subject to the requirements of this subsection.
- b. Definitions. As used in this subsection, all terms not defined herein shall have the meaning given them in North Dakota Century Code chapter 23-25 and in subsection 2 of section 33-15-12-01.
 - (1) "Asphalt concrete plant" means any facility, as described in subdivision a, used to manufacture asphalt concrete by heating and drying aggregate and mixing with asphalt cements.
- c. Standard for particulate matter. On and after the date on which the performance test required to be conducted by subsection 7 of section 33-15-12-01 is completed, no owner or operator subject to the provisions of this subsection

~~shall~~ may discharge or cause the discharge into the atmosphere from any affected facility any gases which:

- (1) Contain particulate matter in excess of ninety milligrams per dry cubic meter at standard conditions [0.04 grains per dscf].
- (2) Exhibit twenty percent opacity, or greater.

d. Test methods and procedures.

- (1) The reference methods appended to this chapter, except as provided for in subdivision b of subsection 7 of section 33-15-12-01, ~~shall~~ must be used to determine compliance with the standards prescribed in subdivision c as follows:
 - (a) Method 5 for the concentration of particulate matter and the associated moisture content.
 - (b) Method 1 for sample and velocity traverses.
 - (c) Method 2 for velocity and volumetric flow rate.
 - (d) Method 3 for gas analysis.
- (2) For ~~Method~~ method 5, the sampling time for each run ~~shall~~ must be at least sixty minutes and the sampling rate ~~shall~~ must be at least nine-tenths dry cubic meter at standard conditions per hour [0.53 dscf per minute] except that shorter sampling times, when necessitated by process variables or other factors, may be approved by the department.

7. Standards of performance for petroleum refineries.

- a. Applicability and designation of affected facility. The provisions of this subsection are applicable to the following affected facilities in petroleum refineries: fluid catalytic cracking unit catalyst regenerators, fuel gas combustion devices, and all Claus sulfur recovery plants except Claus plants of twenty long tons per day or less. The Claus sulfur recovery plant need not be physically located within the boundaries of a petroleum refinery to be an affected facility, provided it processes gases produced within a petroleum refinery. Any fluid catalytic cracking unit catalyst regeneration or fuel gas combustion device which commences construction or modification after June 11, 1973, or any Claus sulfur recovery plant which commences construction or modification after October 4, 1976, is subject to the requirements of this subsection.

- b. Definitions. As used in this subsection, all terms not defined herein shall have the meaning given them in North Dakota Century Code chapter 23-25 and in subsection 2 of section 33-15-12-01.
- (1) "Claus sulfur recovery plant" means a process unit which recovers sulfur from hydrogen sulfide by a vapor-phase catalytic reaction of sulfur dioxide and hydrogen sulfide.
 - (2) "Coke burn-off" means the coke removed from the surface of the fluid catalytic cracking unit catalyst by combustion in the catalyst regenerator. The rate of coke burn-off is calculated by the formula specified in subdivision g.
 - (3) "Fuel gas" means any gas which is generated by a petroleum refinery process unit and which is combusted, including any gaseous mixture of natural gas and fuel gas which is combusted Fuel gas also includes natural gas when the natural gas is combined and combusted in any proportion with a gas generated at a refinery. Fuel gas does not include gases generated by catalytic cracking unit catalyst regenerators and fluid coking burners.
 - (4) "Fuel gas combustion device" means any equipment, such as process heaters, boilers, and flares used to combust fuel gas, but does not include fluid coking unit and fluid catalytic cracking unit incinerator-waste heat boilers or except facilities in which gases are combusted to produce sulfur or sulfuric acid.
 - (5) "Oxidation control system" means an emission control system which reduces emissions from sulfur recovery plants by converting these emissions to sulfur dioxide.
 - (6) "Petroleum" means the crude oil removed from the earth and the oils derived from tar sands, shale, and coal.
 - (7) "Petroleum refinery" means any facility engaged in producing gasoline, kerosene, distillate fuel oils, residual fuel oils, lubricants, or other products through distillation of petroleum or through redistillation, cracking, or reforming of unfinished petroleum derivatives.
 - (8) "Process gas" means any gas generated by a petroleum refinery process unit, except fuel gas and process upset gas as defined in this subdivision.

- (9) "Process upset gas" means any gas generated by a petroleum refinery process unit as a result of startup, shutdown, upset, or malfunction.
- (10) "Reduced sulfur compounds" means hydrogen sulfide (H_2S), carbonyl sulfide (COS) and carbon disulfide (CS_2).
- (11) "Reduction control system" means an emission control system which reduces emissions from sulfur recovery plants by converting these emissions to hydrogen sulfide.
- (12) "Refinery process unit" means any segment of the petroleum refinery in which a specific processing operation is conducted.
- (13) [Reserved]

c. Standard for particulate matter.

- (1) On and after the date on which the performance test required to be conducted by subsection 7 of section 33-15-12-01 is completed, no owner or operator subject to the provisions of this subsection ~~shall~~ may discharge or cause the discharge into the atmosphere from any fluid catalytic cracking unit catalyst regenerator:
 - (a) Particulate matter in excess of one kilogram per one thousand kilograms [1.0 pound per 1000 pounds] of coke burn-off in the catalyst regenerator.
 - (b) Gases exhibiting greater than thirty percent opacity, except for one six-minute average opacity reading in any one-hour period.
- (2) Where the gases discharged by the fluid catalytic cracking unit catalyst regenerator pass through an incinerator or waste heat boiler in which auxiliary or supplemental liquid or solid fossil fuel is burned, particulate matter in excess of that permitted by subparagraph a of paragraph 1 may be emitted to the atmosphere, except that the incremental rate of particulate matter emissions shall not exceed forty-three nanograms per joule [0.10 lb/million Btu] of heat input attributable to such liquid or solid fossil fuel.

d. Standard for carbon monoxide. On and after the date on which the performance test required to be conducted by subsection 7 of section 33-15-12-01 is completed, no owner

or operator subject to the provisions of this subsection ~~shall~~ may discharge or cause the discharge into the atmosphere from the fluid catalytic cracking unit catalyst regenerator any gases which contain carbon monoxide in excess of five-hundredths percent by volume.

e. Standard for sulfur dioxide.

(1) On and after the date on which the performance test required to be conducted by subsection 7 of section 33-15-12-01 is completed, no owner or operator subject to the provisions of this subsection ~~shall~~ may:

(a) Burn in any fuel gas combustion device any fuel gas which contains hydrogen sulfide in excess of two hundred thirty milligrams per dry cubic meter at standard conditions [0.10 gr/dscf], except that the gases resulting from the combustion of fuel gas may be treated to control sulfur dioxide emissions provided the owner or operator demonstrates to the satisfaction of the department that this is as effective in preventing sulfur dioxide emissions to the atmosphere as restricting the hydrogen sulfide concentration in the fuel gas to two hundred thirty milligrams per dry cubic meter at standard conditions or less. The combustion in a flare of process upset gas, or fuel gas which is released to the flare as a result of relief valve leakage, is exempt from this subparagraph.

(b) Discharge or cause the discharge of any gases into the atmosphere from any Claus sulfur recovery plant containing in excess of:

[1] Twenty-five-thousandths percent by volume of sulfur dioxide at zero percent oxygen on a dry basis if emissions are controlled by an oxidation control system, or a reduction control system followed by incineration; or

[2] Thirty-thousandths percent by volume of reduced sulfur compounds and one-thousandths percent by volume of hydrogen sulfide calculated as sulfur dioxide at zero percent oxygen on a dry basis if emissions are controlled by a reduction control system not followed by incineration.

{2} {Reserved}

f. Emission monitoring.

(1) Continuous monitoring systems ~~shall~~ must be installed, calibrated, maintained, and operated by the owner or operator as follows:

(a) A continuous monitoring system for the measurement of the opacity of emissions discharged into the atmosphere from the fluid catalytic cracking unit catalyst regenerator. The continuous monitoring system ~~shall~~ must be spanned at sixty, seventy, or eighty percent opacity.

(b) An instrument for continuously monitoring and recording the concentration of carbon monoxide in gases discharged into the atmosphere from fluid catalytic cracking unit catalyst regenerators. The span of this continuous monitoring system ~~shall~~ must be one thousand parts per million. Installation of carbon monoxide continuous monitoring systems is not required if the owner or operator files a written request for exemption to the department and demonstrates, by the exemption performance test described below, that the average carbon monoxide emissions are less than ten percent of the applicable standard listed in subdivision d of this subsection. The exemption performance test shall consist of continuously monitoring carbon monoxide emissions for thirty days using an instrument that meets the requirements of performance specification 4 of appendix B, except the span value must be one hundred parts per million instead of one thousand parts per million, and if required, the relative accuracy limits shall be ten percent or five parts per million, whichever is greater.

(c) A continuous monitoring system for the measurement of sulfur dioxide in the gases discharged into the atmosphere from the combustion of fuel gases (except where a continuous monitoring system for the measurement of hydrogen sulfide is installed under subparagraph d). The pollutant gas used to prepare calibration gas mixtures under paragraph 2.1, ~~Performance Specification~~ performance specification 2, and for calibration checks under subdivision d of subsection 11 of section 33-15-12-01 ~~shall~~ must be sulfur dioxide. The span ~~shall~~ must be set at one hundred parts per million. For conducting monitoring system

performance evaluations under subdivision c of subsection 11 of section 33-15-12-01, Reference Method reference method 6 shall must be used.

- (d) An instrument for continuously monitoring and recording concentrations of hydrogen sulfide in fuel gases burned in any fuel gas combustion device, if compliance with subparagraph a of paragraph 1 of subdivision e is achieved by removing hydrogen sulfide from the fuel gas before it is burned; fuel gas combustion devices having a common source of fuel gas may be monitored at one location, if monitoring at this location accurately represents the concentration of hydrogen sulfide in the fuel gas burned. The span of this continuous monitoring system shall must be three hundred parts per million.
 - (e) An instrument for continuously monitoring and recording concentrations of sulfur dioxide in the gases discharged into the atmosphere from any Claus sulfur recovery plant if compliance with subparagraph b of paragraph 1 of subdivision e is achieved through the use of an oxidation control system or a reduction control system followed by incineration. The span of this continuous monitoring system shall must be set at five hundred parts per million.
 - (f) An instrument or instruments for continuously monitoring and recording the concentration of hydrogen sulfide and reduced sulfur compounds in the gases discharged into the atmosphere from any Claus sulfur recovery plant if compliance with subparagraph b of paragraph 1 of subdivision e is achieved through the use of a reduction control system not followed by incineration. The span or spans of this continuous monitoring system or systems shall must be set at twenty parts per million for monitoring and recording the concentration of hydrogen sulfide and six hundred parts per million for monitoring and recording the concentration of reduced sulfur compounds.
- (2) [Reserved]
 - (3) The average coke burn-off rate (thousands of kilograms per hour) and hours of operation for any fluid catalytic cracking unit catalyst regenerator subject to subdivisions c and d shall must be recorded daily.

- (4) For any fluid catalytic cracking unit catalyst regenerator which is subject to subdivision c and which utilizes an incinerator-waste heat boiler to combust the exhaust gases from the catalyst regenerator, the owner or operator shall record daily the rate of combustion of liquid or solid fossil fuels (liters per hour or kilograms per hour) and the hours of operation during which liquid or solid fossil fuels are combusted in the incinerator-waste heat boiler.
- (5) For the purpose of reports under subdivision c of subsection 6 of section 33-15-12-01, periods of excess emissions that ~~shall~~ must be reported are defined as follows:
- (a) Opacity. All one-hour periods which contain two or more six-minute periods during which the average opacity as measured by the continuous monitoring system exceeds thirty percent.
- (b) Carbon monoxide. All hourly periods during which the average carbon monoxide concentration in the gases discharged into the atmosphere from any fluid catalytic cracking unit catalyst regenerator subject to subdivision d of subsection 7 exceeds five-hundredths percent by volume.
- (c) Sulfur dioxide.

[1] Any three-hour period during which the average concentration of hydrogen sulfide in any fuel gas combusted in any fuel gas combustion device subject to subparagraph a of paragraph 1 of subdivision e exceeds two hundred thirty milligrams per dry cubic meter at standard conditions [0.10 gr/dscf], if compliance is achieved by removing hydrogen sulfide from the fuel gas before it is burned; or any three-hour period during which the average concentration of sulfur dioxide in the gases discharged into the atmosphere from any fuel gas combustion device subject to subparagraph a of paragraph 1 of subdivision e exceeds the level specified in subparagraph a of paragraph 1 of subdivision e if compliance is achieved by removing sulfur dioxide from the combusted fuel gases.

[2] Any twelve-hour period during which the average concentration of sulfur dioxide in the gases discharged into the atmosphere from any Claus sulfur recovery plant subject to subparagraph b of paragraph 1 of subdivision e exceeds two hundred fifty parts per million at zero percent oxygen on a dry basis if compliance with paragraph 2 of subdivision e is achieved through the use of an oxidation control system or a reduction control system followed by incineration; or any twelve-hour period during which the average concentration of hydrogen sulfide, or reduced sulfur compounds in the gases discharged into the atmosphere of any Claus sulfur plant subject to item 2 of subparagraph b of paragraph 1 of subdivision e exceeds ten parts per million or three hundred parts per million, respectively, at zero percent oxygen and on a dry basis if compliance is achieved through the use of a reduction control system not followed by incineration.

(d) Any six-hour period during which the average emissions (arithmetic average of six contiguous one-hour periods) of sulfur dioxide as measured by a continuous monitoring system exceed the standard under subdivision e of this subsection.

g. Test methods and procedures.

(1) For the purpose of determining compliance with subparagraph a of paragraph 1 of subdivision c of this subsection, the following reference methods and calculation procedures ~~shall~~ must be used:

(a) For gases released to the atmosphere from the fluid catalytic cracking unit catalyst regenerator:

[1] Method 5 for the concentration of particulate matter and moisture content.

[2] Method 1 for sample and velocity traverses.

[3] Method 2 for velocity and volumetric flow rate.

(b) For ~~Method~~ method 5, the sampling time for each run ~~shall~~ must be at least sixty minutes and the sampling rate ~~shall~~ must be at least

fifteen-thousandths dry cubic meter at standard conditions per minute [0.53 dscf per minute], except that shorter sampling times may be approved by the department when process variables or other factors preclude sampling for at least sixty minutes.

(c) For exhaust gases from the fluid catalytic cracking unit catalyst regenerator prior to the emission control system: the integrated sample techniques of Method method 3 and Method method 4 for gas analysis and moisture content, respectively; Method method 1 for velocity traverses; and Method method 2 for velocity and volumetric flow rate.

(d) Coke burn-off rate ~~shall~~ must be determined by the following formula:

$$R_C = 0.2982 Q_{re}(\%CO_2+\%CO)+2.088 Q_{ra}-0.0994Q_{re} \frac{(\%CO+\%CO_2+\%O_2)}{2}$$

(metric units)

or

$$R_C = 0.0186 Q_{re}(\%CO_2+\%CO)+0.1303 Q_{ra}-0.0062Q_{re} \frac{(\%CO+\%CO_2+\%O_2)}{2}$$

(English units)

where:

R_C = coke burn-off rate, kg/hr [English units: lb/hr].

0.2982 = metric units material balance factor divided by 100, kg-min/hr-m³.

0.0186 = English units material balance factor divided by 100, lb-min/hr-ft³.

Q_{re} = fluid catalytic cracking unit catalyst regenerator exhaust gas flow rate before entering the emission control system, as determined by Method method 2, dscm/min [English units: dscf/min].

$\%CO_2$ = percent carbon dioxide by volume, dry basis, as determined by Method method 3.

$\%CO$ = percent carbon monoxide by volume, dry basis, as determined by Method method 3.

$\%O_2$ = percent oxygen by volume, dry basis, as determined by Method method 3.

2.088 = metric units material balance factor divided by 100, kg-min/hr-m³.

0.1303 = English units material balance factor divided by 100, lb-min/hr-ft³.

Qra = air rate to fluid catalytic cracking unit catalyst regenerator, as determined from fluid catalytic cracking unit control room instrumentation dscm/min [English units: dscf/min].

0.0994 = metric units material balance factor divided by 100, kg-min/hr-m³.

0.0062 = English units material balance factor by 100, lb-min/hr-ft³.

(e) Particulate emissions ~~shall~~ must be determined by the following equation:

$$R_E = (60 \times 10^{-6}) Q_{rv} C_3 \text{ [metric units]}$$

$$R_E = (8.57 \times 10^{-3}) Q_{rv} C_3 \text{ [English units]}$$

where:

R_E = particulate emission rate, kg/hr
[English units: lb/hr].

60×10^{-6} = metric units conversion factor,
min-kg/hr-mg.

8.57×10^{-3} = English units conversion factor,
min-lb/hr-gr.

Q_{rv} = volumetric flow rate of gases discharged into the atmosphere from the fluid catalytic cracking unit catalyst regenerator following the emission control system, as determined by **Method method 2**, dscm/min [English units: dscf/min].

C_3 = particulate emission concentration discharged into the atmosphere, as determined by **Method method 5**, mg/dscm [English units: gr/dscf].

(f) For each run, emissions expressed in kilograms [English units: pounds per one thousand pounds] of coke burn-off in the catalyst regenerator ~~shall~~ must be determined by the following equation:

$$R_s = 1000 \frac{R_E}{R_c} \text{ (metric or English units)}$$

where:

R_s = particulate emission rate, kilograms per one thousand kilograms [English units: pounds per one thousand pounds] of coke burn-off in the fluid catalytic cracking unit catalyst regenerator.

1000 = conversion factor, kilograms to one thousand kilograms [English units: pounds to one thousand pounds].

R_E = particulate emission rate, kilograms per hour [English units: pounds per hour].

R_c = coke burn-off rate, kilograms per hour [English units: pounds per hour].

- (g) In those instances in which auxiliary liquid or solid fossil fuels are burned in an incinerator-waste heat boiler, the rate of particulate matter emissions permitted under paragraph 2 of subdivision c must be determined. Auxiliary fuel heat input, expressed in millions of calories per hour [English units: millions of Btu per hour] ~~shall~~ must be calculated for each run by fuel flow rate measurement and analysis of the liquid or solid auxiliary fossil fuels. For each run, the rate of particulate emissions permitted under paragraph 2 of subdivision c ~~shall~~ must be calculated from the following equation:

$$R_s = 1.0 + \frac{0.18 H}{R_c} \text{ (metric units)}$$

or

$$R_s = 1.0 + \frac{0.10 H}{R_c} \text{ (English units)}$$

where:

R_s = allowable particulate emission rate, kilograms per one thousand kilograms [English units: pounds per one thousand pounds] of coke burn-off in the fluid catalytic cracking unit catalyst regenerator.

1.0 = emission standard, one kilogram per one thousand kilograms [English units: one pound per one thousand pounds] of coke burn-off in the fluid catalytic cracking unit regenerator.

0.18 = metric units maximum allowable incremental rate of particulate emissions, grams per million calories.

0.10 = English units maximum allowable incremental rate of particulate emissions, pounds per million Btu.

H = heat input from solid or liquid fossil fuel, million calories per hour [English units: million Btu per hour].

R_c = coke burn-off rate, kilograms per hour [English units: pounds per hour].

(2) For the purpose of determining compliance with subdivision d, the integrated sample technique of ~~Method method~~ 10 ~~shall~~ must be used. The sample ~~shall~~ must be extracted at a rate proportional to the gas velocity at a sampling point near the centroid of the duct. The sampling time ~~shall~~ may not be less than sixty minutes.

(3) For the purpose of determining compliance with subparagraph a of paragraph 1 of subdivision e, ~~Method method~~ 11 ~~shall~~ must be used to determine the concentration of hydrogen sulfide and ~~Method method~~ 6 ~~shall~~ must be used to determine the concentration of sulfur dioxide.

(a) If ~~Method method~~ 11 is used, the gases sampled ~~shall~~ must be introduced into the sampling train at approximately atmospheric pressure. Where refinery fuel gaslines are operating at pressures substantially above atmosphere, this may be accomplished with a flow control valve.

If the line pressure is high enough to operate the sampling train without a vacuum pump, the pump may be eliminated from the sampling train. The sample ~~shall~~ must be drawn from a point near the centroid of the fuel gasline. The minimum sampling time ~~shall~~ must be ten minutes and the minimum sampling volume one-hundredths dry cubic meter at standard conditions [0.35 dscf] for each sample. The arithmetic average of two samples of equal sampling time shall constitute one run. Samples ~~shall~~ must be taken at approximately one-hour intervals. For most fuel gases, sample times exceeding twenty minutes may result in depletion of the collecting solution, although fuel gases containing low concentrations of hydrogen sulfide may necessitate sampling for longer periods of time.

- (b) If ~~Method~~ method 6 is used, ~~Method~~ method 1 ~~shall~~ must be used for velocity traverses and Method 2 for determining velocity and volumetric flow rate. The sampling site for determining sulfur dioxide concentration by ~~Method~~ method 6 ~~shall~~ must be the same as for determining volumetric flow rate by ~~Method~~ method 2. The sampling point in the duct for determining sulfur dioxide concentration by ~~Method~~ method 6 ~~shall~~ must be at the centroid of the cross section if the cross sectional area is less than five square meters [54 square feet] or at a point no closer to the walls than one meter [39 inches] if the cross sectional area is five square meters [54 square feet] or more and the centroid is more than one meter [39 inches] from the wall. The sample shall be extracted at a rate proportional to the gas velocity at the sampling point. The minimum sampling time shall be ten minutes and the minimum sampling volume one-hundredths dry cubic meter at standard conditions [0.35 dscf] for each sample. The arithmetic average of two samples of equal sampling time shall constitute one run. Samples ~~shall~~ must be taken at approximately one-hour intervals.
- (4) For the purpose of determining compliance with subparagraph b of paragraph 1 of subdivision e, ~~Method~~ method 6 ~~shall~~ must be used to determine the concentration of sulfur dioxide and ~~Method~~ method 15 ~~shall~~ must be used to determine the concentration of hydrogen sulfide and reduced sulfur compounds.

- (a) If Method method 6 is used, the procedure outlined in subparagraph b of paragraph 3 shall must be followed except that each run shall span a minimum of four consecutive hours of continuous sampling. A number of separate samples may be taken for each run, provided the total sampling time of these samples adds up to a minimum of four consecutive hours. Where more than one sample is used, the average sulfur dioxide concentration for the run shall be calculated as the time weighted average of the sulfur dioxide concentration for each sample according to the formula:

$$C_R = \frac{\sum_{i=1}^N C_{S_i} t_{S_i}}{T}$$

where:

C_R = SO₂ concentration for the run.

N = number of samples.

C_{S_i} = SO₂ concentration for sample i .

t_{S_i} = continuous sampling time of sample i .

T = total continuous sampling time of all N samples.

- (b) If Method method 15 is used, each run shall consist of sixteen samples taken over a minimum of three hours. The sampling point shall must be at the centroid of the cross section of the duct if the cross sectional area is less than five square meters [54 square feet] or at a point no closer to the walls than one meter [39 inches] if the cross sectional area is five square meters [54 square feet] or more and the centroid is more than one meter [39 inches] from the wall. To ensure minimum residence time for the sample inside the sample lines, the sampling rate shall must be at least three liters per minute [0.1 cubic foot per minute]. The sulfur dioxide equivalent for each run shall must be calculated as the arithmetic average of the sulfur dioxide equivalent of each sample during the run. Reference Method method 4 shall must be used to determine the moisture content of the gases. The sampling point for Method

method 4 shall be adjacent to the sampling point for ~~Method~~ method 15. The sample ~~shall~~ must be extracted at a rate proportional to the gas velocity at the sampling point. Each run shall span a minimum of four consecutive hours of continuous sampling. A number of separate samples may be taken for each run provided the total sampling time of these samples adds up to a minimum of four consecutive hours. Where more than one sample is used, the average moisture content for the run ~~shall~~ must be calculated as the time weighted average of the moisture content of each sample according to the formula:

$$B_{wo} = \sum_{v=1}^N B_{vi} \left(\frac{t_{vi}}{T} \right)$$

where:

B_{wo} = proportion by volume of water vapor in the gas stream for the run.

N = number of samples.

B_{vi} = proportion by volume of water vapor in the gas stream for the sample i .

t_{vi} = continuous sampling time for sample i .

T = total continuous sampling time of all N samples.

- (5) An owner or operator of an affected facility may request the department to determine opacity of emissions from the affected facility during any performance test covered under subsection 7 of section 33-15-12-01. In such event the provisions of paragraphs 2, 3, and 4 of subdivision e of subsection 9 of section 33-15-12-01 shall apply.
8. Standards of performance for storage vessels for petroleum liquids constructed after July 1, 1970, and prior to May 19, 1978.
- a. Applicability and designation of affected facility.
- (1) Except as provided in paragraph 2, the affected facility to which this subsection applies is each storage vessel for petroleum liquids which has a

storage capacity greater than one hundred fifty-one thousand four hundred twelve liters [40,000 gallons].

- (2) This subsection does not apply to storage vessels for petroleum or condensate stored, processed, or treated at a drilling and production facility prior to custody transfer.
- (3) Any facility under paragraph 1 that **commences** commenced construction after ~~March 8, 1974~~ July 1, 1970, and prior to May 19, 1978, is subject to the requirements of this subsection.

b. Definitions. As used in this section, all terms not defined herein shall have the meaning given them in North Dakota Century Code chapter 23-25 and in subsection 2 of section 33-15-12-01.

- (1) "Condensate" means hydrocarbon liquid separated from natural gas which condenses due to changes in the temperature or pressure, or both, and remains liquid at standard conditions.
- (2) "Custody transfer" means the transfer of produced petroleum or condensate, or both, after processing or treating, or both, in the producing operations, from storage tanks or automatic transfer facilities to pipelines or any other forms of transportation.
- (3) "Drilling and production facility" means all drilling and servicing equipment, wells, flow lines, separators, equipment, gathering lines, and auxiliary non-transportation-related equipment used in the production of petroleum but does not include natural gasoline plants.
- (4) "Floating roof" means a storage vessel cover consisting of a double deck, pontoon single deck, internal floating cover or covered floating roof, which rests upon and is supported by the petroleum liquid being contained, and is equipped with a closure seal or seals to close the space between the roof edge and tank wall.
- (5) "Hydrocarbon" means any organic compound consisting predominantly of carbon and hydrogen.
- (6) "Petroleum" means the crude oil removed from the earth and the oils derived from tar sands, shale, and coal.
- (7) "Petroleum liquids" means petroleum, condensate, and any finished or intermediate products manufactured in

a petroleum refinery but does not mean Number 2 through Number 6 fuel oils as specified in A.S.T.M. D39669, gas turbine fuel oils Numbers 2-GT through 4-GT as specified in A.S.T.M. D2880-71, or diesel fuel oils Numbers 2-D and 4-D as specified in A.S.T.M. D975-68.

- (8) "Petroleum refinery" means any facility engaged in producing gasoline, kerosene, distillate fuel oils, residual fuel oils, lubricants, or other products through distillation of petroleum or through redistillation, cracking, or reforming of unfinished petroleum derivatives.
- (9) "Reid vapor pressure" is the absolute vapor pressure of volatile crude oil and volatile nonviscous petroleum liquids, except liquefied petroleum gases, as determined by A.S.T.M. D323-58 (~~reapproved 1968~~).
- (10) "Storage vessel" means any tank, reservoir, or container used for the storage of petroleum liquids, but does not include:
- (a) Pressure vessels which are designed to operate in excess of fifteen pounds [6.80 kilograms] per square inch [6.45 square centimeters] gauge without emissions to the atmosphere except under emergency conditions.
 - (b) Subsurface caverns or porous rock reservoirs.
 - (c) Underground tanks if the total volume of petroleum liquids added to and taken from a tank annually does not exceed twice the volume of the tank.
- (11) "True vapor pressure" means the equilibrium partial pressure exerted by a petroleum liquid as determined in accordance with methods described in American petroleum institute bulletin 2517, Evaporation Loss from External Floating Roof Tanks, 1962 Second Edition, February 1980.
- (12) "Vapor recovery system" means a vapor gathering system capable of collecting all hydrocarbon vapors and gases discharged from the storage vessel and a vapor disposal system capable of processing such hydrocarbon vapors and gases so as to prevent their emission to the atmosphere.
- c. Standard for hydrocarbons volatile organic compounds (VOC). The owner or operator of any storage vessel to

which this subsection applies shall store petroleum liquids as follows:

- (1) If the true vapor pressure of the petroleum liquid, as stored, is equal to or greater than seventy-eight millimeters mercury [1.5 pounds per square inch absolute] but not greater than five hundred seventy millimeters mercury [11.1 pounds per square inch absolute], the storage vessel shall be equipped with a floating roof, a vapor recovery system, or their equivalents.
- (2) If the true vapor pressure of the petroleum liquid as stored is greater than five hundred seventy millimeters mercury [11.1 pounds per square inch absolute], the storage vessel ~~shall~~ must be equipped with a vapor recovery system or its equivalent.

d. Monitoring of operations.

- (1) ~~The~~ Except as provided in paragraph 4, the owner or operator of any storage vessel to which this subsection applies shall ~~for each such storage vessel~~ maintain a file of each type record of the petroleum liquid stored, of the typical Reid vapor pressure of each type of petroleum liquid stored, and of the dates period of storage. Dates on which the storage vessel is empty shall be shown, and the maximum true vapor pressure of that liquid during the respective storage period.
- (2) The owner or operator of any storage vessel to which this subsection applies shall for each such storage vessel determine and record the average monthly storage temperature and true vapor pressure of the petroleum liquid stored at such temperature if:
 - (a) The petroleum liquid has a true vapor pressure, as stored, greater than twenty-six millimeters mercury {0.5 pounds per square inch absolute} but not less than seventy-eight millimeters mercury {1.5 pounds per square inch absolute} and is stored in a storage vessel other than one equipped with a floating roof, a vapor recovery system or their equivalents; or
 - (b) The petroleum liquid has a true vapor pressure, as stored, greater than four

hundred seventy millimeters mercury {9.1 pounds per square inch absolute} and is stored in a storage vessel other than one equipped with a vapor recovery system or its equivalent. Available data on the typical Reid vapor pressure and the maximum expected storage temperature of the stored product may be used to determine the maximum true vapor pressure from nomographs contained in American petroleum institute bulletin 2517, unless the department specifically requests that the liquid be sampled, the actual storage temperature determined, and the Reid vapor pressure determined from the samples.

- (3) The average monthly storage temperature is an arithmetic average calculated for each calendar month, or portion thereof if storage is for less than a month, from bulk liquid storage temperatures determined at least once every seven days. The true vapor pressure of each type of crude oil with a Reid vapor pressure less than 13.8 kilopascals [2.0 psia] or whose physical properties preclude determination by the recommended method is to be determined from available data and recorded if the estimated true vapor pressure is greater than 6.9 kilopascals [1.0 psia].
- (4) The true vapor pressure shall be determined by the procedures in American petroleum institute bulletin 2517. This procedure is dependent upon determination of the storage temperature and the Reid vapor pressure, which requires sampling of the petroleum liquids in the storage vessels. Unless the department requires in specific cases that the stored petroleum liquid be sampled, the true vapor pressure may be determined by using the average monthly storage temperature and the typical Reid vapor pressure. For those liquids for which certified specifications limiting the Reid vapor pressure exist, that Reid vapor pressure may be used. For other liquids, supporting analytical data must be made available on request to the department when typical Reid vapor pressure is used. The following are exempt from the requirements of this subdivision:

- (a) Each owner or operator of each affected facility which stores petroleum liquids with a Reid vapor pressure of less than 6.9 kilopascals [1.0 psia] provided the maximum true vapor pressure does not exceed 6.9 kilopascals [1.0 psia].
 - (b) Each owner or operator of each affected facility equipped with a vapor recovery and return or disposal system in accordance with the requirements of subdivision c.
9. Standards of performance for storage vessels for petroleum liquids constructed after May 18, 1978.
- a. Applicability and designation of affected facility.
 - (1) The affected facility to which this subsection applies is each storage vessel for petroleum liquids which has a storage capacity greater than one hundred fifty-one thousand four hundred sixteen liters [40,000 gallons] and for which construction is commenced after May 18, 1978.
 - (2) Each petroleum liquid storage vessel with a capacity of less than one million five hundred eighty-nine thousand eight hundred seventy-three liters [420,000 gallons] used for petroleum or condensate stored, processed, or treated prior to custody transfer is not an affected facility and, therefore, is exempt from the requirements of this subsection.
 - b. Definitions. As used in this section, all terms not defined herein shall have the meaning given them in North Dakota Century Code chapter 23-25 and in subsection 2 of section 33-15-12-01.
 - (1) "Condensate" means hydrocarbon liquid separated from natural gas which condenses due to changes in the temperature or pressure, or both, and remains liquid at standard conditions.
 - (2) "Custody transfer" means the transfer of produce petroleum or condensate, or both, after processing or treating, or both, in the producing operations, from storage tanks or automatic transfer facilities to pipelines or any other forms of transportation.
 - (3) "Liquid-mounted seal" means a foam or liquid-filled primary seal mounted in contact with the liquid between the tank wall and the floating roof continuously around the circumference of the tank.

- (4) "Metallic shoe seal" includes, but is not limited to, a metal sheet held vertically against the tank wall by springs or weighted levers and is connected by braces to the floating roof. A flexible coated fabric (envelope) spans the annular space between the metal sheet and the floating roof.
- (5) "Petroleum liquids" means petroleum, condensate, and any finished or intermediate products manufactured in a petroleum refinery but does not mean numbers 2 through 6 fuel oil as specified in A.S.T.M. D396-78, gas turbine fuel oils numbers 2-GT through 4-GT as specified in A.S.T.M. D2880-78, or diesel fuel oils numbers 2-D and 4-D as specified in A.S.T.M. D975-78.
- (6) "Petroleum" means the crude oil removed from the earth and the oils derived from tar sands, shale, and coal.
- (7) "Petroleum refinery" means each facility engaged in producing gasoline, kerosene, distillate fuel oils, residual fuel oils, lubricants, or other products through distillation of petroleum or through redistillation, cracking, extracting, or reforming of unfinished petroleum derivatives.
- (8) "Reid vapor pressure" is the absolute vapor pressure of volatile crude oil and volatile nonviscous petroleum liquids, except liquified petroleum gases, as determined by A.S.T.M. D323-58.
- (9) "Storage vessel" means each tank, reservoir, or container used for the storage of petroleum liquids, but does not include:
- (a) Pressure vessels which are designed to operate in excess of 204.9 kilopascals [15 psia] without emissions to the atmosphere except under emergency conditions;
 - (b) Subsurface caverns or porous rock reservoirs; or
 - (c) Underground tanks if the total volume of petroleum liquids added to and taken from a tank annually does not exceed twice the volume of the tank.
- (10) "True vapor pressure" means the equilibrium partial pressure exerted by a petroleum liquid such as determined in accordance with methods described in American petroleum institute bulletin 2517, Evaporation Loss from Floating Roof Tanks, 1962.

(11) "Vapor-mounted seal" means a foam-filled primary seal mounted continuously around the circumference of the tank so there is an annular vapor space underneath the seal. The annular vapor space is bounded by the bottom of the primary seal, the tank wall, the liquid surface, and the floating roof.

c. Standard for volatile organic compounds.

(1) The owner or operator of each storage vessel to which this subsection applies which contains a petroleum liquid which, as stored, has a true vapor pressure equal to or greater than 10.3 kilopascals [1.5 psia] but not greater than 76.6 kilopascals [11.1 psia] shall equip the storage vessel with one of the following:

(a) An external floating roof, consisting of a pontoon-type or double-deck-type cover that rests on the surface of the liquid contents and is equipped with a closure device between the tank wall and the roof edge. Except as provided in subitem d of item 2 of subparagraph a of paragraph 1 of this subdivision, the closure device is to consist of two seals, one above the other. The lower seal is referred to as the primary seal and the upper seal is referred to as the secondary seal. The roof is to be floating on the liquid at all times (i.e., off the roof leg supports) except during initial fill and when the tank is completely emptied and subsequently filled. The process of emptying and refilling when the roof is resting on the leg supports must be continuous and must be accomplished as rapidly as possible.

[1] The primary seal is to be either a metallic shoe seal, a liquid-mounted seal, or a vapor-mounted seal. Each seal is to meet the following requirements:

[a] The accumulated area of gaps between the tank wall and the metallic shoe seal or the liquid-mounted seal may not exceed two hundred twelve cm^2 per meter of tank diameter [10.0 in^2 per ft or tank diameter] and the width of any portion of any gap may not exceed 3.81 centimeters [1 1/2 in].

[b] The accumulated area of gaps between the tank wall and the vapor-mounted seal may not exceed 21.2 cm^2 per meter

of tank diameter [1.0 in² per ft of tank diameter] and the width of any portion of any gap may not exceed 1.27 centimeters [1/2 in].

[c] One end of the metallic shoe is to extend into the stored liquid and the other end is to extend a minimum vertical distance of sixty-one centimeters [24 in] above the stored liquid surface.

[d] There are to be no holes, tears, or other openings in the shoe, seal fabric, or seal envelope.

[2] The secondary seal is to meet the following requirements:

[a] The secondary seal is to be installed above the primary seal so that it completely covers the space between the roof edge and the tank wall except as provided in subitem b of item 2 of subparagraph a of paragraph 1 of this subdivision.

[b] The accumulated area of gaps between the tank wall and the secondary seal used in combination with a metallic shoe or liquid-mounted primary seal may not exceed 21.2 cm² per meter of tank diameter [1.0 in² per ft of tank diameter] and the width of any portion of any gap may not exceed 1.27 centimeters [1/2 in]. There may be no gaps between the tank wall and the secondary seal used in combination with a vapor-mounted primary seal.

[c] There are to be no holes, tears, or other openings in the seal or seal fabric.

[d] The owner or operator is exempted from the requirements for secondary seals and the secondary seal gap criteria when performing gap measurements or inspections of the primary seal.

[3] Each opening in the roof except for automatic bleeder vents and rim space vents is to provide a projection below the liquid

surface. Each opening in the roof except for automatic bleeder vents, rim space vents, and leg sleeves is to be equipped with a cover, seal, or lid which is to be maintained in a closed position at all times (i.e., no visible gap) except when the device is in actual use or as described in item 4 of subparagraph a of paragraph 1 of this subdivision. Automatic bleeder vents are to be closed at all times when the roof is floating, except when the roof is being floated off or is being landed on the roof leg supports. Rim vents are to be set to open when the roof is being floated off the roof leg supports or at the manufacturer's recommended setting.

[4] Each emergency roof drain is to be provided with a slotted membrane fabric cover that covers at least ninety percent of the area of the opening.

(b) A fixed roof with an internal floating-type cover equipped with a continuous closure device between the tank wall and the cover edge. The cover is to be floating at all times, (i.e., off the leg supports) except during initial fill and when the tank is completely emptied and subsequently refilled. The process of emptying and refilling when the cover is resting on the leg supports must be continuous and must be accomplished as rapidly as possible. Each opening in the cover except for automatic bleeder vents and the rim space vents is to provide a projection below the liquid surface. Each opening in the cover except for automatic bleeder vents, rim space vents, stub drains, and leg sleeves is to be equipped with a cover, seal, or lid which is to be maintained in a closed position at all times (i.e., no visible gap), except when the device is in actual use. Automatic blender vents are to be closed at all times when the cover is floating except when the cover is being floated off or is being landed on the leg supports. Rim vents are to be set to open only when the cover is being floated off the leg supports or at the manufacturer's recommended setting.

(c) A vapor recovery system which collects all volatile organic compounds vapors and gases discharged from the storage vessel, and a vapor return or disposal system which is designed to

process such volatile organic compounds vapors and gases so as to reduce their emission to the atmosphere by at least ninety-five percent by weight.

(d) A system equivalent to those described in subparagraphs a, b, or c of paragraph 1 of this subdivision as provided in subdivision e.

(2) The owner or operator of each storage vessel to which this subsection applies which contains a petroleum liquid which, as stored, has a true vapor pressure greater than 76.6 kilopascals [11.1 psia], shall equip the storage vessel with a vapor recovery system which collects all volatile organic compounds vapors and gases discharged from the storage vessel, and a vapor return or disposal system which is designed to process such volatile organic compounds vapors and gases so as to reduce their emission to the atmosphere by at least ninety-five percent by weight.

d. Testing and procedures.

(1) Except as provided in subdivision b of subsection 7 of section 33-15-12-01, compliance with the standard prescribed in subdivision c must be determined as follows or in accordance with an equivalent procedure as provided in subdivision e.

(a) The owner or operator of each storage vessel to which this subsection applies which has an external floating roof shall meet the following requirements:

[1] Determine the gap areas and maximum gap widths between the primary seal and the tank wall, and the secondary seal and the tank wall according to the following frequency and furnish the department with a written report of the results within sixty days of performance of gap measurements:

[a] For primary seals, gap measurements shall be performed within sixty days of the initial fill with petroleum liquid and at least once every five years thereafter. All primary seal inspections or gap measurements which require the removal or dislodging of the secondary seal must be accomplished as rapidly as possible and the secondary seal must be replaced as soon as possible.

- [b] For secondary seals, gap measurements must be performed within sixty days of the initial fill with petroleum liquid and at least once every year thereafter.
- [c] If any storage vessel is out of service for a period of one year or more, subsequent refilling with petroleum liquid must be considered initial fill for the purposes of subitems a and b of item 1 of subparagraph a of paragraph 1 of this subdivision.
- [2] Determine gap widths in the primary and secondary seals individually by the following procedures:
- [a] Measure seal gaps, if any, at one or more floating roof levels when the roof is floating off the roof leg supports.
- [b] Measure seal gaps around the entire circumference of the tank in each place where a one-eighth inch diameter uniform probe passes freely (without forcing or binding against seal) between the seal and the tank wall and measure the circumferential distance of each such location.
- [c] The total surface area of each gap described in subitem b of item 2 of subparagraph a of paragraph 1 of this subdivision must be determined by using probes of various widths to accurately measure the actual distance from the tank wall to the seal and multiplying each such width by its respective circumferential distance.
- [3] Add the gap surface area of each gap location for the primary seal and the secondary seal individually. Divide the sum for each seal by the nominal diameter of the tank and compare each ratio to the appropriate ratio in the standard in items 1 and 2 of subparagraph a of paragraph 1 of subdivision c.

[4] Provide the department thirty days' prior notice of the gap measurement to afford the department the opportunity to have an observer present.

(b) The owner or operator of each storage vessel to which this subsection applies which has a vapor recovery and return or disposal system shall provide the following information to the department on or before the date on which construction of the storage vessel commences:

[1] Emission data, if available, for a similar vapor recovery and return or disposal system used on the same type of storage vessel, which can be used to determine the efficiency of the system. A complete description of the emission measurement method used must be included.

[2] The manufacturer's design specifications and estimated emission reduction capability of the system.

[3] The operation and maintenance plan for the system.

[4] Any other information which will be useful to the department in evaluating the effectiveness of the system in reducing volatile organic compounds emissions.

e. Equivalent equipment and procedures.

(1) Upon written application from an owner or operator and after notice and opportunity for public hearing, the department and administrator may approve the use of equipment or procedures, or both, which have been demonstrated to its satisfaction to be equivalent in terms of reduced volatile organic compounds emissions to the atmosphere to the degree prescribed for compliance with specific paragraphs of this subsection.

(2) The owner or operator shall provide the following information in the application for determination of equivalency:

(a) Emission data, if available, which can be used to determine the effectiveness of the equipment or procedures in reducing volatile organic compounds emissions from the storage vessel. A

complete description of the emission measurement method used must be included.

- (b) The manufacturer's design specifications and estimated emission reduction capability of the equipment.
- (c) The operation and maintenance plan for the equipment.
- (d) Any other information which will be useful to the department in evaluating the effectiveness of the equipment or procedures in reducing volatile organic compounds emissions.
- (e) The primary vapor-mounted seal in the "Volume-Maximizing Seal" manufactured by R.F.I. services corporation is approved as equivalent to the vapor-mounted seal required by item 1 of subparagraph a of paragraph 1 of subdivision c and must meet the gap criteria specified in subitem b of item 1 of subparagraph a of paragraph 1 of subdivision c. There may be no gaps between the tank wall and any secondary seal used in conjunction with the primary seal in the "Volume-Maximizing Seal".

f. Monitoring of operations.

- (1) Except as provided in paragraph 4 of this subdivision, the owner or operator subject to this subsection shall maintain a record of the petroleum liquid stored, the period of storage, and the maximum true vapor pressure of that liquid during the respective storage period.
- (2) Available data on the typical Reid vapor pressure and the maximum expected storage temperature of the stored product may be used to determine the maximum true vapor pressure from nomographs contained in American petroleum institute bulletin 2517, unless the department specifically requests that the liquid be sampled, the actual storage temperature determined, and the Reid vapor pressure determined from the samples.
- (3) The true vapor pressure of each type of crude oil with a Reid vapor pressure less than 13.8 kilopascals [2.0 psia] or whose physical properties preclude determination by the recommended method is to be determined from available data and recorded if the estimated true vapor pressure is greater than 6.9 kilopascals [1.0 psia].

(4) The following are exempt from the requirements of this subdivision:

(a) Each owner or operator of each storage vessel storing a petroleum liquid with a Reid vapor pressure of less than 6.9 kilopascals [1.0 psia] provided the maximum true vapor pressure does not exceed 6.9 kilopascals [1.0 psia].

(b) Each owner or operator of each storage vessel equipped with a vapor recovery and return or disposal system in accordance with the requirements of subparagraph c of paragraph 1 and paragraph 2 of subdivision c.

10. Standards of performance for incinerators.

- a. Applicability and designation of affected facility. The provisions of this subsection are applicable to each incinerator of more than forty-five metric tons [50 tons] per day charging rate, which is the affected facility. Any facility that commences construction or modification after August 17, 1971, is subject to the requirements of this subsection.
- b. Definitions. As used in this subsection, all terms not defined herein shall have the meaning given them in North Dakota Century Code chapter 23-25 and in subsection 2 of section 33-15-12-01.
- (1) "Day" means twenty-four hours.
- (2) "Incinerator" means any furnace used in the process of burning solid waste for the purpose of reducing the volume of the waste by removing combustible matter.
- (3) "Solid waste" means refuse, more than fifty percent of which is municipal-type waste consisting of a mixture of paper, wood, yard wastes, food wastes, plastics, leather, rubber, and other combustibles, and noncombustible materials such as glass and rock.
- c. Standard for particulate matter. On and after the date on which the performance test required to be conducted by subsection 7 of section 33-15-12-01 is completed, no owner or operator subject to the provisions of this subsection shall cause to be discharged into the atmosphere from any affected facility any gases which contain particulate matter in excess of 0.18 gram per dry cubic meter at standard conditions [0.08 gr/dscf] corrected to twelve percent carbon dioxide.

- d. Monitoring of operations. The owner or operator of any incinerator subject to the provisions of this subsection shall record the daily charging rates and hours of operation.
- e. Test methods and procedures.
 - (1) The reference methods in ~~Appendix~~ appendix A to this chapter, except as provided for in subdivision b of subsection 7 of section 33-15-12-01, ~~shall~~ must be used to determine compliance with the standard prescribed in subdivision c of this subsection as follows:
 - (a) Method 5 for the concentration of particulate matter and the associated moisture content.
 - (b) Method 1 for sample and velocity traverses.
 - (c) Method 2 for velocity and volumetric flow rate.
 - (d) Method 3 for gas analysis and calculation of excess air, using the integrated sample technique.
 - (2) For ~~Method~~ method 5, the sampling time for each run ~~shall~~ must be at least sixty minutes and the minimum sample volume ~~shall~~ must be 0.85 dry cubic meter at standard conditions [30.0 dscf] except that smaller sampling times or sample volumes, when necessitated by process variables or other factors, may be approved by the department.
 - (3) If a wet scrubber is used, the gas analysis sample shall reflect flue gas conditions after the scrubber, allowing for carbon dioxide absorption by sampling the gas on the scrubber inlet and outlet sides according to either the procedure under subparagraphs a through e or the procedure under subparagraphs a, b, and f as follows:
 - (a) The outlet sampling site ~~shall~~ must be the same as for the particulate matter measurement. The inlet site ~~shall~~ must be selected according to ~~Method~~ method 1, or as specified by the department.
 - (b) Randomly select nine sampling points within the cross section at both the inlet and outlet sampling sites. Use the first set of three for the first run, the second set for the second run, and the third set for the third run.

- (c) Simultaneously with each particulate matter run, extract and analyze for carbon dioxide an integrated gas sample according to Method method 3, traversing the three sample points and sampling at each point for equal increments of time. Runs ~~shall~~ must be conducted at both inlet and outlet sampling sites.
- (d) Measure the volumetric flow rate at the inlet during each particulate matter run according to Method method 2, using the full number of traverse points. For the inlet make two full velocity traverses approximately one hour apart during each run and average the results. The outlet volumetric flow rate may be determined from the particulate matter run (Method method 5).
- (e) Calculate the adjusted carbon dioxide percentage using the following equation:

$$(\% \text{ CO}_2)_{\text{adj}} = (\% \text{ CO}_2)_{\text{di}} (Q_{\text{di}}/Q_{\text{do}})$$

where:

$(\% \text{ CO}_2)_{\text{adj}}$ = adjusted carbon dioxide percentage which removes the effect of carbon dioxide absorption and dilution air.

$(\% \text{ CO}_2)_{\text{di}}$ = percentage of carbon dioxide measured before the scrubber, dry basis.

Q_{di} = volumetric flow rate before the scrubber, average of two runs, dscf/min (using Method method 2).

Q_{do} = volumetric flow rate after the scrubber, dscf/min (using Methods methods 2 and 5).

- (f) Alternatively, the following procedures may be substituted for the procedures under subparagraphs c, d, and e.

[1] Simultaneously with each particulate matter run, extract and analyze for carbon dioxide, oxygen, and nitrogen an integrated gas sample according to Method method 3, traversing the three sample points and sampling for equal increments of time at

each point. Conduct the runs at both the inlet and outlet sampling sites.

- [2] After completing the analysis of the gas sample, calculate the percentage of excess air (% EA) for both the inlet and outlet sampling sites using equation 3-1 in ~~Appendix~~ appendix A to this chapter.

- [3] Calculate the adjusted carbon dioxide percentage using the following equation:

$$(\% \text{ CO}_2)_{\text{adj}} = (\% \text{ CO}_2)_{\text{di}} \frac{100+(\% \text{ EA})_{\text{i}}}{100+(\% \text{ EA})_{\text{o}}}$$

where:

$(\% \text{ CO}_2)_{\text{adj}}$ = adjusted outlet carbon dioxide percentage.

$(\% \text{ CO}_2)_{\text{di}}$ = percentage of carbon dioxide measured before the scrubber, dry basis.

$(\% \text{ EA})_{\text{i}}$ = percentage of excess air at the inlet.

$(\% \text{ EA})_{\text{o}}$ = percentage of excess air at the outlet.

- [4] Particulate matter emissions, expressed in grams per dry cubic meter at standard conditions, ~~shall~~ must be corrected to twelve percent carbon dioxide by using the following formula:

$$c_{12} = \frac{12c}{\% \text{ CO}_2}$$

where:

c_{12} = concentration of particulate matter corrected to twelve percent carbon dioxide.

c = concentration of particulate matter as measured by Method method 5.

% CO₂ = percentage of carbon dioxide

as measured by ~~Method~~ method 3,
or when applicable, the adjusted
outlet carbon dioxide percentage as
determined by this paragraph.

~~10-~~ 11. Standards of performance for sewage treatment plants.

- a. Applicability and designation of affected facility. The affected facility is each incinerator that combusts wastes containing more than ten percent sewage sludge (dry basis) produced by municipal sewage treatment plants, or each incinerator that charges more than one thousand kilograms [~~2204~~ 2205 pounds] per day municipal sewage sludge (dry basis). Any facility that commences construction after June 11, 1973, is subject to the requirements of this subsection.
- b. Definitions. As used in this subsection, all terms not defined herein shall have the meaning given them in North Dakota Century Code chapter 23-25 and in subsection 2 of section 33-15-12-01.
- c. Standard for particulate matter. On and after the date on which the performance test required to be conducted by subsection 7 of section 33-15-12-01 is completed, no owner or operator of any sewage sludge incinerator subject to the provisions of this subsection ~~shall~~ may discharge or cause the discharge into the atmosphere of:
 - (1) Particulate matter at a rate in excess of sixty-five-hundredths grams per kilogram dry sludge input [1.30 pounds per ton dry sludge input].
 - (2) Any gases which exhibit twenty percent opacity or greater.
- d. Monitoring of operations. The owner or operator of any sludge incinerator subject to the provisions of this subsection shall:
 - (1) Install, calibrate, maintain, and operate a flow measuring device which can be used to determine either the mass or volume of sludge charged to the incinerator. The flow measuring device shall have an accuracy of \pm five percent over its operating range.
 - (2) Provide access to the sludge charged so that a well-mixed representative grab sample of the sludge can be obtained.
 - (3) Install, calibrate, maintain, and operate a weighing device for determining the mass of any municipal

solid waste charged to the incinerator when sewage sludge and municipal solid waste are incinerated together. The weighing device shall have an accuracy of \pm five percent over its operating range.

e. Test methods and procedures.

- (1) The reference methods appended to this chapter, except as provided for in subdivision b of subsection 7 of section 33-15-12-01, ~~shall~~ must be used to determine compliance with the standards prescribed in subdivision c of this subsection as follows:
 - (a) Method 5 for concentration of particulate matter and associated moisture content.
 - (b) Method 1 for sample and velocity traverses.
 - (c) Method 2 for volumetric flow rate.
 - (d) Method 3 for gas analysis.
- (2) For ~~Method~~ method 5, the sampling time for each run ~~shall~~ must be at least sixty minutes and the sampling rate ~~shall~~ must be at least fifteen-thousandths dry cubic meter at standard conditions per minute [0.53 dscf per minute], except that shorter sampling times, when necessitated by process variables or other factors, may be approved by the department.
- (3) Dry sludge charging rate ~~shall~~ must be determined as follows:
 - (a) Determine the mass or volume of sludge charged to the incinerator during each run using a flow measuring device meeting the requirements of paragraph 1 of subdivision d. If total input during a run is measured by a flow measuring device, such readings ~~shall~~ must be used. Otherwise, record the flow measuring device readings at five-minute intervals during a run. Determine the quantity charged during each interval by averaging the flow rates at the beginning and end of the interval and then multiplying the average for each interval by the time for each interval. Then add the quantity for each interval to determine the total quantity charged during the entire run, sludge mass or sludge volume.
 - (b) Collect samples of the sludge charged to the incinerator in nonporous collecting jars at the

beginning of each run and at approximately one-hour intervals thereafter until the test ends, and determine for each sample the dry sludge content (total solids residue) in accordance with "224 G. Method for Solid and Semisolid Samples," Standard Methods for the Examination of Water and Wastewater, Thirteenth Edition, American Public Health Association, Incorporated, New York, New York, 1971, pages 539-41, except that:

- [1] Evaporating dishes ~~shall~~ must be ignited to at least one hundred three degrees Celsius rather than the five hundred fifty degrees Celsius [1022 degrees Fahrenheit] specified in step 3(a)(1).
- [2] Determination of volatile residue, step 3(b) may be deleted.
- [3] The quantity of dry sludge per unit sludge charged ~~shall~~ must be determined in terms of either R_{dv} (metric units: mg dry sludge/liter sludge charged or English units: lb/ft³) or R_{dm} (metric units: mg dry sludge/mg sludge charged or English units: lb/lb).

(c) Determine the quantity of dry sludge per unit sludge charged in terms of either R_{dv} or R_{dm} .

- [1] If the volume of sludge charged is used:

$$S_d = (60 \times 10^{-3}) \frac{R_{dv} S_v}{T} \text{ (metric units)}$$

or

$$S_d = (8.021) \frac{R_{dv} S_v}{T} \text{ (English units)}$$

where:

S_d = average dry sludge charging rate during the run, kg/hr [English units: lb/hr].

R_{dv} = average quantity of dry sludge per unit volume of sludge charged to the incinerator, mg/l [English units: lb/ft³].

S_v = sludge charged to the incinerator during the run, m³ [English units: gal].

T = duration of run, min [English units: min].

60×10^{-3} = metric units conversion factor, 1-kg-min/m³-mg-hr.

8.021 = English units conversion factor, ft³-min/gal-hr.

[2] If the mass of sludge charged is used:

$$S_d = (60) \frac{R_{dm} S_m}{T} \text{ (metric or English units)}$$

where:

S_d = average dry sludge charging rate during the run, kg/hr [English units: lb/hr].

R_{dm} = average ratio of quantity of dry sludge to quantity of sludge charged to the incinerator mg/mg [English units: lb/lb].

S_m = sludge charged during the run, kg [English units: lb].

T = duration of run, min (metric or English units).

60 = conversion factor, min/hr (metric or English units).

(4) Particulate emission rate ~~shall~~ must be determined by:

$$C_{aw} = C_s Q_s \text{ (metric or English units)}$$

where:

C_{aw} = particulate matter mass emissions, mg/hr
[English units: lb/hr].

C_s = particulate matter concentration, mg/m³
[English units: lb/dscf].

Q_s = volumetric stack gas flow rate, dscm/hr
[English units: dscf/hr]. Q_s and C_s ,
shall be determined using Methods
methods 2 and 5, respectively.

- (5) Compliance with subdivision c ~~shall~~ must be determined as follows:

$$C_{ds} = (10^{-3}) \frac{C_{aw}}{S_d} \text{ (metric units)}$$

or

$$C_{ds} = (2000) \frac{C_{aw}}{S_d} \text{ (English units)}$$

where:

C_{ds} = particulate emission discharge, g/kg dry
sludge [English units: lb/ton dry sludge].

10^{-3} = metric conversion factor, g/mg.

2000 = English conversion factor, lb/ton.

~~11-~~ 12. Standards of performance for the phosphate fertilizer industry
- Wet-process phosphoric acid plants.

- a. Applicability and designation of affected facility. The affected facility to which the provisions of this subsection apply is each wet-process phosphoric acid plant having a design capacity of more than fifteen tons of equivalent P₂O₅ feed per calendar year. For the purpose of this subsection, the affected facility includes any combination of: reactors, filters, evaporators, and hot wells. Any facility that commences construction or modification after October 22, 1974, is subject to the requirements of this subsection.

b. Definitions. As used in this subsection, all terms not defined herein shall have the meaning given them in North Dakota Century Code chapter 23-25 and in subsection 2 of section 33-15-12-01.

(1) "Equivalent P_2O_5 feed" means the quantity of phosphorus, expressed as phosphorus pentoxide, fed to the process.

(2) "Total fluorides" means elemental fluorine and all fluoride compounds as measured by reference methods specified in subdivision e, or equivalent or alternative methods.

(3) "Wet-process phosphoric acid plant" means any facility manufacturing phosphoric acid by reacting phosphate rock and acid.

c. Standard for fluorides. On and after the date of which the performance test required to be conducted by subsection 7 of section 33-15-12-01 is completed, no owner or operator subject to the provisions of this subsection ~~shall~~ may cause to be discharged into the atmosphere from any affected facility any gases which contain total fluorides in excess of ten grams per metric ton of equivalent P_2O_5 feed [0.020 pound per ton].

d. Monitoring of operations.

(1) The owner or operator of any wet-process phosphoric acid plant subject to the provisions of this subsection shall install, calibrate, maintain, and operate a monitoring device which can be used to determine the mass flow of phosphorus-bearing feed material to the process. The monitoring device shall have an accuracy of \pm five percent over its operating range.

(2) The owner or operator of any wet-process phosphoric acid plant shall maintain a daily record of equivalent P_2O_5 feed by first determining the total mass rate in metric ton per hour of phosphorus-bearing feed using a monitoring device for measuring mass flow rate which meets the requirements of paragraph 1 and then by proceeding according to subparagraph b of paragraph 4 of subdivision e.

(3) The owner or operator of any wet-process phosphoric acid plant subject to the provisions of this subsection shall install, calibrate, maintain, and operate a monitoring device which continuously measures and permanently records the total pressure drop across the process scrubbing system. The

monitoring device shall have an accuracy of \pm five percent over its operating range.

e. Test methods and procedures.

(1) Reference methods in ~~Appendix~~ appendix A of this chapter, except as provided in subdivision b of subsection 7 of section 33-15-12-01, ~~shall~~ must be used to determine compliance with the standard prescribed in subdivision c of this subsection as follows:

(a) Method 13A or 13B for the concentration of total fluorides and the associated moisture content.

(b) Method 1 for sample and velocity traverses.

(c) Method 2 for velocity and volumetric flow rate.

(d) Method 3 for gas analysis.

(2) For ~~Method~~ method 13A or 13B, the sampling time for each run ~~shall~~ must be at least sixty minutes and the minimum sample volume ~~shall~~ must be at least eighty-five-hundredths dry cubic meter at standard conditions [30 dscf] except that shorter sampling times or smaller volumes, when necessitated by process variables or other factors, may be approved by the department.

(3) The air pollution control system for the affected facility ~~shall~~ must be constructed so that volumetric flow rates and total fluoride emissions can be accurately determined by applicable test methods and procedures.

(4) Equivalent P_2O_5 feed ~~shall~~ must be determined as follows:

(a) Determine the total mass rate in metric ton per hour of phosphorus-bearing feed during each run using a flow monitoring device meeting the requirements of paragraph 1 of subdivision d.

(b) Calculate the equivalent P_2O_5 feed by multiplying the percentage phosphorous pentoxide content, as measured by the spectrophotometric molybdovanadophosphate method (A.O.A.C. ~~Method~~ method 9), times the total mass rate of phosphorus-bearing feed. A.O.A.C. ~~Method~~ method 9 is published in the Official Methods of Analysis of the Association of Official Analytical Chemists, 11th edition, 1970, pages

11-12. Other methods may be approved by the department.

- (5) For each run, emissions expressed in grams per metric ton of equivalent P_2O_5 feed ~~shall~~ must be determined using the following equation:

$$E = \frac{(C_s Q_s) 10^{-3}}{M_{P_2O_5}}$$

where:

E = emissions of total fluorides in grams per metric ton of equivalent P_2O_5 feed.

C_s = concentration of total fluorides in milligrams per dscm as determined by ~~Method~~ method 13A or 13B.

Q_s = volumetric flow rate of the effluent gas stream in dscm per hour as determined by ~~Method~~ method 2.

10^{-3} = conversion factor for milligrams to grams.

$M_{P_2O_5}$ = equivalent P_2O_5 feed in metric ton per hour as determined by paragraph 4.

~~12-~~ 13. Standards of performance for the phosphate fertilizer industry - Superphosphoric acid plants.

- a. Applicability and designation of affected facility. The affected facility to which the provisions of this subsection apply is each superphosphoric acid plant having a design capacity of more than fifteen tons of equivalent P_2O_5 feed per calendar year. For the purpose of this subsection, the affected facility includes any combination of evaporators, hot wells, acid sumps, and cooling tanks. Any facility that commences construction or modification after October 22, 1974, is subject to the requirements of this subsection.
- b. Definitions. As used in this subsection, all terms not defined herein shall have the meaning given them in North Dakota Century Code chapter 23-25 and in subsection 2 of section 33-15-12-01.
- (1) "Equivalent P_2O_5 feed" means the quantity of phosphorus, expressed as phosphorous pentoxide, fed to the process.

- (2) "Superphosphoric acid plant" means any facility which concentrates wet-process phosphoric acid to sixty-six percent or greater phosphorous pentoxide content by weight for eventual consumption as a fertilizer.
 - (3) "Total fluorides" means elemental fluorine and all fluoride compounds as measured by reference methods specified in subdivision e, or equivalent or alternative methods.
- c. Standard for fluorides. On and after the date on which the performance test required to be conducted by subsection 7 of section 33-15-12-01 is completed, no owner or operator subject to the provisions of this subsection ~~shall~~ may cause to be discharged into the atmosphere from any affected facility any gases which contain total fluorides in excess of five grams per metric ton of equivalent P_2O_5 feed [0.010 pound per ton].
- d. Monitoring of operations.
- (1) The owner or operator of any superphosphoric acid plant subject to the provisions of this subsection shall install, calibrate, maintain, and operate a flow monitoring device which can be used to determine the mass flow of phosphorus-bearing feed material to the process. The flow monitoring device shall have an accuracy of \pm five percent over its operating range.
 - (2) The owner or operator of any superphosphoric acid plant shall maintain a daily record of equivalent P_2O_5 feed by first determining the total mass rate in metric ton per hour of phosphorus-bearing feed using a flow monitoring device meeting the requirements of paragraph 1 and then by proceeding according to subparagraph b of paragraph 4 of subdivision e.
 - (3) The owner or operator of any superphosphoric acid plant subject to the provisions of this subsection shall install, calibrate, maintain, and operate a monitoring device which continuously measures and permanently records the total pressure drop across the process scrubbing system. The monitoring device shall have an accuracy of \pm five percent over its operating range.
- e. Test methods and procedures.
- (1) Reference methods in ~~Appendix~~ appendix A of this chapter, except as provided in subdivision b of subsection 7 of section 33-15-12-01, ~~shall~~ must be used to determine compliance with the standard

prescribed in subdivision c of this subsection as follows:

- (a) Method 13A or 13B for the concentration of total fluorides and the associated moisture content.
 - (b) Method 1 for sample and velocity traverses.
 - (c) Method 2 for velocity and volumetric flow rate.
 - (d) Method 3 for gas analysis.
- (2) For ~~Method~~ method 13A or 13B, the sampling time for each run ~~shall~~ must be at least sixty minutes and the minimum sample volume ~~shall~~ must be at least eighty-five-hundredths dry cubic meter at standard conditions [30 dscf] except that shorter sampling times or smaller volumes, when necessitated by process variables or other factors may be approved by the department.
- (3) The air pollution control system for the affected facility ~~shall~~ must be constructed so that volumetric flow rates and total fluoride emissions can be accurately determined by applicable test methods and procedures.
- (4) Equivalent P_2O_5 feed ~~shall~~ must be determined as follows:
- (a) Determine the total mass rate in metric ton per hour of phosphorus-bearing feed during each run using a flow monitoring device meeting the requirements of paragraph 1 of subdivision d.
 - (b) Calculate the equivalent P_2O_5 feed by multiplying the percentage phosphorus pentoxide content, as measured by the spectrophotometric molybdovanadophosphate method (A.O.A.C. Method method 9), times the total mass rate of phosphorus-bearing feed. A.O.A.C. Method method 9 is published in the Official Methods of Analysis of the Association of Official Analytical Chemists, 11th edition, 1970, pages 11-12. Other methods may be approved by the department.
- (5) For each run, emissions expressed in grams per metric ton of equivalent P_2O_5 feed, ~~shall~~ must be determined using the following equation:

$$E = \frac{(C_S Q_S) 10^{-3}}{M_{P_2O_5}}$$

where:

E = emissions of total fluorides in grams per metric ton of equivalent P_2O_5 feed.

C_s = concentration of total fluorides in milligrams per dscm as determined by Method method 13A or 13B.

Q_s = volumetric flow rate of the effluent gas stream in dscm per hour as determined by Method method 2.

10^{-3} = conversion factor for milligrams to grams.

$M_{P_2O_5}$ = equivalent P_2O_5 feed in metric ton per hour as determined by this subsection.

13- 14. Standards of performance for the phosphate fertilizer industry - Diammonium phosphate plants.

- a. Applicability and designation of affected facility. The affected facility to which the provisions of this subsection apply is each granular diammonium phosphate plant having a design capacity of more than fifteen tons of equivalent P_2O_5 feed per calendar year. For the purpose of this subsection, the affected facility includes any combination of reactors, granulators, dryers, coolers, screens, and mills. Any facility that commences construction or modification after October 22, 1974, is subject to the requirements of this subsection.
- b. Definitions. As used in this subsection, all terms not defined herein shall have the meaning given them in North Dakota Century Code chapter 23-25 and in subsection 2 of section 33-15-12-01.
- (1) "Equivalent P_2O_5 feed" means the quantity of phosphorus, expressed as phosphorous pentoxide, fed to the process.
 - (2) "Granular diammonium phosphate plant" means any plant manufacturing granular diammonium phosphate by reacting phosphoric acid with ammonia.
 - (3) "Total fluorides" means elemental fluorine and all fluoride compounds as measured by reference methods specified in subdivision e or equivalent or alternative methods.

c. Standard for fluorides. On and after the date on which the performance test required to be conducted by subsection 7 of section 33-15-12-01 is completed, no owner or operator subject to the provisions of this subsection ~~shall~~ may cause to be discharged into the atmosphere from any affected facility any gases which contain total fluorides in excess of thirty grams per metric ton of equivalent P_2O_5 feed [0.060 pounds per ton].

d. Monitoring of operations.

(1) The owner or operator of any granular diammonium phosphate plant subject to the provisions of this subsection shall install, calibrate, maintain, and operate a flow monitoring device which can be used to determine the mass flow of phosphorus-bearing feed material to the process. The flow monitoring device shall have an accuracy of \pm five percent over its operating range.

(2) The owner or operator of any granular diammonium phosphate plant shall maintain a daily record of equivalent P_2O_5 feed by first determining the total mass rate in metric ton per hour of phosphorus-bearing feed using a flow monitoring device meeting the requirements of paragraph 1 and then by proceeding according to subparagraph a of paragraph 4 of subdivision e.

(3) The owner or operator of any granular diammonium phosphate plant subject to the provisions of this subsection shall install, calibrate, maintain, and operate a monitoring device which continuously measures and permanently records the total pressure drop across the scrubbing system. The monitoring device shall have an accuracy of \pm five percent over its operating range.

e. Test methods and procedures.

(1) Reference methods in ~~Appendix~~ appendix A of this chapter, except as provided for in subdivision b of subsection 7 of section 33-15-12-01, ~~shall~~ must be used to determine compliance with the standard prescribed in subdivision c of this subsection as follows:

(a) Method 13A or 13B for the concentration of total fluorides and the associated moisture content.

(b) Method 1 for sample and velocity traverses.

(c) Method 2 for velocity and volumetric flow rate.

- (d) Method 3 for gas analysis.
- (2) For Method method 13A or 13B, the sampling time for each run shall must be at least sixty minutes and the minimum sample volume shall must be at least eighty-five-hundredths dry cubic meter at standard conditions [30 dscf] except that shorter sampling times or smaller volumes when necessitated by process variables or other factors, may be approved by the department.
- (3) The air pollution control system for the affected facility shall must be constructed so that volumetric flow rates and total fluoride emissions can be accurately determined by applicable test methods and procedures.
- (4) Equivalent P_2O_5 feed shall must be determined as follows:
- (a) Determine the total mass rate in metric ton per hour of phosphorus-bearing feed during each run using a flow monitoring device meeting the requirements of paragraph 1 of subdivision d.
- (b) Calculate the equivalent P_2O_5 feed by multiplying the percentage phosphorus pentoxide content, as measured by the spectrophotometric molybdovanadophosphate method (A.O.A.C. Method method 9), times the total mass rate of phosphorus-bearing feed. A.O.A.C. Method method 9 is published in the Official Methods of Analysis of the Association of Official Analytical Chemists, 11th edition, 1970, pages 11-12. Other methods may be approved by the department.
- (5) For each run, emissions expressed in grams per metric ton of equivalent P_2O_5 feed shall must be determined using the following equation:

$$E = \frac{(C_s Q_s) 10^{-3}}{M_{P_2O_5}}$$

where:

E = emissions of total fluorides in grams per metric ton of equivalent P_2O_5 .

C_s = concentration of total fluorides in

milligrams per dscm as determined by
~~Method~~ method 13A or 13B.

Q_s = volumetric flow rate of the effluent gas
stream in dscm per hour as determined by
~~Method~~ method 2.

10^{-3} = conversion factor for milligrams to grams.

$M_{P_2O_5}$ = equivalent P_2O_5 feed in metric ton per
hour as determined by paragraph 4.

~~14-~~ 15. Standards of performance for the phosphate fertilizer industry
- Triple superphosphate plants.

- a. Applicability and designation of affected facility. The affected facility to which the provisions of this subsection apply is each triple superphosphate plant having a design capacity of more than fifteen tons of equivalent P_2O_5 feed per calendar year. For the purpose of this subsection, the affected facility includes any combination of mixers, curing belts (dens), reactors, granulators, dryers, cookers, screens, mills, and facilities which store run-of-pile triple superphosphate. Any facility that commences construction or modification after October 22, 1974, is subject to the requirements of this subsection.
- b. Definitions. As used in this subsection, all terms not defined herein shall have the meaning given them in North Dakota Century Code chapter 23-25 and in subsection 2 of section 33-15-12-01.
 - (1) "Equivalent P_2O_5 feed" means the quantity of phosphorus, expressed as phosphorus pentoxide, fed to the process.
 - (2) "Run-of-pile triple superphosphate" means any triple superphosphate that has not been processed in a granulator and is composed of particles at least twenty-five percent by weight of which (when not caked) will pass through a sixteen mesh screen.
 - (3) "Total fluorides" means elemental fluorine and all fluoride compounds as measured by reference methods specified in subdivision e, or equivalent or alternative methods.
 - (4) "Triple superphosphate plant" means any facility manufacturing triple superphosphate by reacting phosphate rock with phosphoric acid. A run-of-pile triple superphosphate plant includes curing and storing.

c. Standard for fluorides. On and after the date on which the performance test required to be conducted by subsection 7 of section 33-15-12-01 is completed, no owner or operator subject to the provisions of this subsection ~~shall~~ may cause to be discharged into the atmosphere from any affected facility any gases which contain total fluorides in excess of one hundred grams per metric ton [0.20 pound per ton] of equivalent P_2O_5 feed.

d. Monitoring of operations.

(1) The owner or operator of any triple superphosphate plant subject to the provisions of this subsection shall install, calibrate, maintain, and operate a flow monitoring device which can be used to determine the mass flow of phosphorus-bearing feed material to the process. The flow monitoring device shall have an accuracy of \pm five percent of its operating range.

(2) The owner or operator of any triple superphosphate plant shall maintain a daily record of equivalent P_2O_5 feed by first determining the total mass rate in metric ton per hour of phosphorus-bearing feed using a flow monitoring device meeting the requirements of paragraph 1 and then by proceeding according to subparagraph b of paragraph 4 of subdivision e.

(3) The owner or operator of any triple superphosphate plant subject to the provisions of this subsection shall install, calibrate, maintain, and operate a monitoring device which continuously measures and permanently records the total pressure drop across the process scrubbing system. The monitoring device shall have an accuracy of \pm five percent over its operating range.

e. Test methods and procedures.

(1) Reference methods in ~~Appendix~~ appendix A of this chapter, except as provided for in subdivision b of subsection 7 of section 33-15-12-01, ~~shall~~ must be used to determine compliance with the standard prescribed in subdivision c of this subsection as follows:

(a) Method 13A or 13B for the concentration of total fluorides and the associated moisture content.

(b) Method 1 for sample and velocity traverses.

(c) Method 2 for velocity and volumetric flow rate.

(d) Method 3 for gas analysis.

- (2) For ~~Method~~ method 13A or 13B, the sampling time for each run ~~shall~~ must be at least sixty minutes and the minimum sample volume ~~shall~~ must be at least eighty-five-hundredths dry cubic meter at standard conditions [30 dscf] except that shorter sampling times or smaller volumes, when necessitated by process variables or other factors, may be approved by the department.
- (3) The air pollution control system for the affected facility ~~shall~~ must be constructed so that volumetric flow rates and total fluoride emissions can be accurately determined by applicable test methods and procedures.
- (4) Equivalent P_2O_5 feed ~~shall~~ must be determined as follows:
- (a) Determine the total mass rate in metric ton per hour of phosphorus-bearing feed during each run using a flow monitoring device meeting the requirements of paragraph 1 of subdivision d.
- (b) Calculate the equivalent P_2O_5 feed by multiplying the percentage phosphorus pentoxide content, as measured by the spectrophotometric molybdovanadophosphate method (A.O.A.C. ~~Method~~ method 9), times the total mass rate of phosphorus-bearing feed. A.O.A.C. ~~Method~~ method 9 is published in the Official Methods of Analysis of the Association of Official Analytical Chemists, 11th edition, 1970, pages 11-12. Other methods may be approved by the department.
- (5) For each run, emissions expressed in grams per metric ton of equivalent P_2O_5 feed ~~shall~~ must be determined using the following equation:

$$E = \frac{(C_s Q_s) 10^{-3}}{M_{P_2O_5}}$$

where:

E = emissions of total fluorides in grams per metric ton of equivalent P_2O_5 feed.

C_s = concentration of total fluorides in milligrams per dscm as determined by ~~Method~~ method 13A or 13B.

Q_s = volumetric flow rate of the effluent gas stream in dscm per hour as determined by ~~Method~~ method 2.

10^{-3} = conversion factor for milligrams to grams.

$M_{P_2O_5}$ = equivalent P_2O_5 feed in metric ton per hour as determined by paragraph 4.

~~15-~~ 16. Standards of performance for the phosphate fertilizer industry
- Granular triple superphosphate storage facilities.

- a. Applicability and designation of affected facility. The affected facility to which the provisions of this subsection apply is each granular triple superphosphate storage facility. For the purpose of this subsection, the affected facility includes any combination of storage or curing piles, conveyors, elevators, screens, and mills. Any facility that commences construction or modification after October 22, 1974, is subject to the requirements of this subsection.
- b. Definitions. As used in this subsection, all terms not defined herein shall have the meaning given them in North Dakota Century Code chapter 23-25 and in subsection 2 of section 33-15-12-01.
 - (1) "Equivalent P_2O_5 stored" means the quantity of phosphorus, expressed as phosphorus pentoxide, being cured or stored in the affected facility.
 - (2) "Fresh granular triple superphosphate" means granular triple superphosphate produced no more than ten days prior to the date of the performance test.
 - (3) "Granular triple superphosphate storage facility" means any facility curing or storing granular triple superphosphate.
 - (4) "Total fluorides" means elemental fluorine and all fluoride compounds as measured by reference methods specified in subdivision e, or equivalent or alternative methods.
- c. Standard for fluorides. On and after the date on which the performance test required to be conducted by subsection 7 of section 33-15-12-01 is completed, no owner or operator subject to the provisions of this subsection ~~shall~~ may cause to be discharged into the atmosphere from any affected facility any gases which contain total fluorides in excess of twenty-five-hundredths gram per

hour per metric ton of equivalent P_2O_5 stored [5.0×10^{-4} pounds per hour per ton of equivalent P_2O_5 stored].

d. Monitoring of operations.

- (1) The owner or operator of any granular triple superphosphate storage facility subject to the provisions of this subsection shall maintain an accurate account of triple superphosphate in storage to permit the determination of the amount of equivalent P_2O_5 stored.
- (2) The owner or operator of any granular triple superphosphate storage facility shall maintain a daily record of total equivalent P_2O_5 stored by multiplying the percentage phosphorus pentoxide content, as determined by subparagraph b of paragraph 6 of subdivision e, times the total mass of granular triple superphosphate stored.
- (3) The owner or operator of any granular triple superphosphate storage facility subject to the provisions of this subsection shall install, calibrate, maintain, and operate a monitoring device which continuously measures and permanently records the total pressure drop across the process scrubbing system. The monitoring device shall have an accuracy of \pm five percent over its operating range.

e. Test methods and procedures.

- (1) Reference methods in ~~Appendix~~ appendix A of this chapter, except as provided for in subdivision b of subsection 7 of section 33-15-12-01, ~~shall~~ must be used to determine compliance with the standard prescribed in subdivision c of this subsection as follows:
 - (a) Method 13A or 13B for the concentration of total fluorides and the associated moisture content.
 - (b) Method 1 for sample and velocity traverses.
 - (c) Method 2 for velocity and volumetric flow rate.
 - (d) Method 3 for gas analysis.
- (2) For ~~Method~~ method 13A or 13B, the sampling rate time for each run ~~shall~~ must be at least sixty minutes and the minimum sample volume ~~shall~~ must be at least eighty-five-hundredths dry cubic meter at standard conditions [30 dscf] except that shorter sampling times or smaller volumes, when necessitated

by process variables or other factors, may be approved by the department.

- (3) The air pollution control system for the affected facility ~~shall~~ must be constructed so that volumetric flow rates and total fluoride emissions can be accurately determined by applicable test methods and procedures.
- (4) Except as provided under paragraph 5, all performance tests on granular triple superphosphate storage facilities shall be conducted only when the following quantities of product are being cured or stored in the facility:
 - (a) Total granular triple superphosphate - at least ten percent of the building capacity.
 - (b) Fresh granular triple superphosphate - at least twenty percent of the amount of triple superphosphate in the building.
- (5) If the provisions set forth in subparagraph b of paragraph 4 exceed production capabilities for fresh granular triple superphosphate, the owner or operator shall have at least five days maximum production of fresh granular triple superphosphate in the building during a performance test.
- (6) Equivalent P_2O_5 stored ~~shall~~ must be determined as follows:
 - (a) Determine the total mass stored during each run using an accountability system meeting the requirements of paragraph 1 of subdivision d.
 - (b) Calculate the equivalent P_2O_5 stored by multiplying the percentage phosphorus pentoxide content, as measured by the spectrophotometric molybdovanadophosphate method (A.O.A.C. Method method 9), times the total mass stored, A.O.A.C. Method method 9 is published in the Official Methods of Analysis of the Association of Official Analytical Chemist, 11th edition, 1970, pages 11-12. Other methods may be approved by the department.
- (7) For each run, emissions expressed in grams per hour per metric ton of equivalent P_2O_5 stored ~~shall~~ must be determined using the following equation:

$$E = \frac{(C_S Q_S)}{M_{P_2O_5}} 10^{-3}$$

where:

E = emissions of total fluorides in grams per hour per metric ton of equivalent P_2O_5 stored.

C_s = concentration of total fluorides in milligrams per dscm as determined by ~~Method~~ method 13A or 13B.

Q_s = volumetric flow rate of the effluent gas stream in dscm per hour as determined by ~~Method~~ method 2.

10^{-3} = conversion factor for milligrams to grams.

$M_{P_2O_5}$ = equivalent P_2O_5 feed in metric tons as measured by paragraph 4.

~~16-~~ **17. Standards of performance for coal preparation plants.**

- a. Applicability and designation of affected facility. The provisions of this subsection are applicable to any of the following affected facilities in coal preparation plants which process more than two hundred tons [181.44 metric tons] per day: thermal dryers, pneumatic coal-cleaning equipment (air tables), coal processing and conveying equipment (including breakers and crushers), coal storage systems, and coal transfer and loading systems. Any facility that commences construction or modification after October 24, 1974, is subject to the requirements of this subsection.
- b. Definitions. As used in this subsection, all terms not defined herein have the meaning given them in North Dakota Century Code chapter 23-25 and in subsection 2 of section 33-15-12-01.
 - (1) "Bituminous coal" means solid fossil fuel classified as bituminous coal by A.S.T.M. Designation ~~D-388-66~~ D-388-77.
 - (2) "Coal" means all solid fossil fuels classified as anthracite, bituminous, subbituminous, or lignite by A.S.T.M. Designation ~~D-388-66~~ D-388-77.
 - (3) "Coal preparation plant" means any facility (excluding underground mining operations) which prepares coal by one or more of the following processes: breaking, crushing, screening, wet or dry cleaning, and thermal drying.

- (4) "Coal processing and conveying equipment" means any machinery used to reduce the size of coal or to separate coal from refuse, and the equipment used to convey coal to or remove coal and refuse from the machinery. This includes, but is not limited to, breakers, crushers, screens, and conveyor belts.
- (5) "Coal storage system" means any facility used to store coal except for open storage piles.
- (6) "Cyclonic flow" means a spiraling movement of exhaust gases within a duct or stack.
- (7) "Pneumatic coal-cleaning equipment" means any facility which classifies bituminous coal by size or separates bituminous coal from refuse by application of air streams.
- (8) "Thermal dryer" means any facility in which the moisture content of bituminous coal is reduced by contact with a heated gas stream which is exhausted to the atmosphere.
- (9) "Transfer and loading system" means any facility used to transfer and load coal for shipment.

c. Standards for particulate matter.

- (1) On and after the date on which the performance test required to be conducted by subsection 7 of section 33-15-12-01 is completed, an owner or operator subject to the provisions of this subsection ~~shall~~ may not cause to be discharged into the atmosphere from any thermal dryer gases which:
 - (a) Contain particulate matter in excess of seven-hundredths gram per dry cubic meter at standard conditions [0.031 gr/dscf].
 - (b) Exhibit twenty percent opacity or greater.
- (2) On and after the date on which the performance test required to be conducted by subsection 7 of section 33-15-12-01 is completed, an owner or operator subject to the provisions of this subsection ~~shall~~ may not cause to be discharged into the atmosphere from any pneumatic coal-cleaning equipment, gases which:
 - (a) Contain particulate matter in excess of four-hundredths gram per dry cubic meter at standard conditions [0.018 gr/dscf].

(b) Exhibit ten percent opacity or greater.

(3) On and after the date on which the performance test required to be conducted by subsection 7 of section 33-15-12-01 is completed, an owner or operator subject to the provisions of this subsection ~~shall~~ may not cause to be discharged into the atmosphere from any coal processing and conveying equipment, coal storage system, or coal transfer and loading system processing coal, gases which exhibit twenty percent opacity or greater.

d. Monitoring of operations.

(1) The owner or operator of any thermal dryer shall install, calibrate, maintain, and continuously operate monitoring devices as follows:

(a) A monitoring device for the measurement of the temperature of the gas stream at the exit of the thermal dryer on a continuous basis. The monitoring device is to be certified by the manufacturer to be accurate within \pm three degrees Fahrenheit.

(b) For affected facilities that use venturi scrubber emission control equipment:

[1] A monitoring device for the continuous measurement of the pressure loss through the venturi constriction of the control equipment. The monitoring device is to be certified by the manufacturer to be accurate within \pm one inch [2.54 centimeters] water gauge.

[2] A monitoring device for the continuous measurement of the water supply pressure to the control equipment. The monitoring device is to be certified by the manufacturer to be accurate within \pm five percent of design water supply pressure. The pressure sensor or tap must be located close to the water discharge point. The department may be consulted for approval of alternative locations.

(2) All monitoring devices under paragraph 1 are to be recalibrated annually in accordance with procedures under paragraph 3 of subdivision b of subsection 11 of section 33-15-12-01.

e. Test methods and procedures.

- (1) The reference methods in ~~Appendix~~ appendix A of this chapter, except as provided in subdivision b of subsection 7 of section 33-15-12-01, are used to determine compliance with the standards prescribed in subdivision b of this subsection as follows:
 - (a) Method 5 for the concentration of particulate matter and associated moisture content.
 - (b) Method 1 for sample and velocity traverses.
 - (c) Method 2 for velocity and volumetric flow rate.
 - (d) Method 3 for gas analysis.
- (2) For ~~Method~~ method 5, the sampling time for each run is at least sixty minutes and the minimum sample volume is eighty-five-hundredths dry cubic meter at standard conditions [30 dscf] except that shorter sampling times or smaller volumes, when necessitated by process variables or other factors, may be approved by the department. Sampling is not to be started until thirty minutes after startup and is to be terminated before shutdown procedures commence. The owner or operator of the affected facility shall eliminate cyclonic flow during performance tests in a manner acceptable to the department.
- (3) The owner or operator shall construct the facility so that particulate emissions from thermal dryers or pneumatic coal-cleaning equipment can be accurately determined by applicable test methods and procedures under paragraph 1.

~~17-~~ 18. Standards of performance for lime manufacturing plants.

- a. Applicability and designation of affected facility.
 - (1) The provisions of this subsection are applicable to the following affected facilities each rotary lime kiln used in the manufacture of lime- rotary lime kilns and lime hydrators.
 - (2) The provisions of this subsection are not applicable to facilities used in the manufacture of lime at kraft pulp mills.
 - (3) Any facility under paragraph 1 that commences construction or modification after May 3, 1977, is subject to the requirements of this subsection.
- b. Definitions. As used in this subsection, all terms not defined herein shall have the same meaning given them in

North Dakota Century Code chapter 23-25 and in subsection 2 of section 33-15-12-01.

- (1) "Lime hydrator" means a unit used to produce hydrated lime product.
- (2) "Lime manufacturing plant" includes any plant which produces uses a rotary lime kiln to produce lime product from limestone by calcination. Hydration of the lime product is also considered to be part of the source.
- (3) (2) "Lime product" means the product of the calcination process including, but not limited to, calcitic lime, dolomitic lime, and dead-burned dolomite.
- (3) "Positive-pressure fabric filter" means a fabric filter with the fans on the upstream side of the filter bags.
- (4) "Rotary lime kiln" means a unit with an inclined rotating drum which is used to produce a lime product from limestone by calcination.
- (5) "Stone feed" means limestone feed stock and millscale or other iron oxide additive that become part of the product.

c. Standard for particulate matter. On and after the date on which the performance test required to be conducted by subsection 7 of section 33-15-12-01 is completed, no owner or operator subject to the provisions of this subsection shall may cause to be discharged into the atmosphere:

- (1) From any rotary lime kiln any gases which:
 - (a) Contain particulate matter in excess of ~~fifteen-hundredths~~ 0.30 kilogram per megagram [~~0.30~~ 0.60 pounds per ton] of limestone feed greater than fifteen percent opacity when exiting from a dry emission control device.

~~(b) Exhibit ten percent opacity or greater.~~

- (2) From any lime hydrator any gases which contain particulate matter in excess of ~~seventy-five-thousandths~~ kilogram per megagram [~~0.15~~ pound per ton] of lime feed.

d. Monitoring of emissions and operations.

- (1) The owner or operator of a facility that is subject to the provisions of this subsection shall install, calibrate, maintain, and operate a continuous monitoring system, except as provided in paragraph paragraphs 2 and 3, to monitor and record the opacity of a representative portion of the gases discharged into the atmosphere from any rotary lime kiln. The span of this system ~~shall~~ must be set at forty percent opacity.
- (2) The owner or operator of any rotary lime kiln using a wet scrubbing emission positive-pressure fabric filter control device subject to the provisions of this subsection ~~shall not be required to monitor the opacity of the gases discharged as required in paragraph 1 but shall install, calibrate, maintain, and operate the following~~ may, in lieu of the continuous monitoring devices-
- (a) ~~A monitoring device for the continuous measurement of the pressure loss of the gas stream through the scrubber. The monitoring device must be accurate within \pm two hundred fifty pascals (one inch of water).~~
- (b) ~~A monitoring device for the continuous measurement of the scrubbing liquid supply pressure to the control device. The monitoring device must be accurate within \pm five percent of design scrubbing liquid supply pressure requirement of paragraph 1, monitor visible emissions at least once per day of operation by using a certified visible emissions observer who, for each site where visible emissions are observed, will perform and record three method 9 tests on the gases discharged into the atmosphere.~~
- (3) The owner or operator of any lime hydrater using a wet scrubbing emission control device subject to the provisions of this subsection shall install, calibrate, maintain, and operate the following continuous monitoring devices-
- (a) ~~A monitoring device for the continuous measuring of the scrubbing liquid flow rate. The monitoring device must be accurate within \pm five percent of design scrubbing liquid flow rate.~~

(b) A monitoring device for the continuous measurement of the electric current, in amperes, used by the scrubber. The monitoring device must be accurate within ± 10 percent over its normal operating range. The owner or operator of any rotary lime kiln using a wet scrubbing emission control device subject to the provisions of this subsection shall not be required to monitor the opacity of the gases discharged as required in paragraph 1 of this subdivision, but shall install, calibrate, maintain, operate, and record the resultant information from the following continuous monitoring devices:

(a) A monitoring device for the continuous measurement of the pressure loss of the gas stream through the scrubber. The monitoring device must be accurate within ± 250 pascals [1 inch of water].

(b) A monitoring device for continuous measurement of the scrubbing liquid supply pressure to the control device. The monitoring device must be accurate within ± 5 percent of the design scrubbing liquid supply pressure.

(4) For the purpose of conducting a performance test under subsection 7 of section 33-15-12-01, the owner or operator of any lime manufacturing plant subject to the provisions of this subsection shall install, calibrate, maintain, and operate a device for measuring the mass rate of limestone feed to any affected rotary lime kiln and the mass rate of lime feed to any affected lime hydrator. The measuring device used must be accurate to within ± 5 percent of the mass rate over its operating range. For the purpose of conducting a performance test under subsection 7 of section 33-15-12-01, the owner or operator of any lime manufacturing plant subject to the provisions of this subsection shall install, calibrate, maintain, and operate a device for measuring the mass rate of stone feed to any affected rotary lime kiln. The measuring device used must be accurate to within ± 5 percent of the mass rate over its operating range.

(5) For the purpose of reports required under subdivision e of subsection 6 of section 33-15-12-01, periods of excess emissions

that shall be reported are defined as all six-minute periods during which the average opacity of the plume from any lime kiln subject to paragraph 1 is ten percent or greater. For the purpose of reports required under subdivision c of subsection 6 of section 33-15-12-01, periods of excess emissions that must be reported are defined as all six-minute periods during which the average opacity of the visible emissions from any lime kiln subject to paragraph 1 of this subdivision is greater than fifteen percent or, in the case of wet scrubbers, any period in which the scrubber pressure drop is greater than thirty percent below the rate established during the performance test. Reports of excess emissions recorded during observations made as required by paragraph 3 of subdivision e must be submitted semiannually.

e. Test methods and procedures.

(1) Reference methods in Appendix A to this chapter, except as provided under subdivision b of subsection 7 of section 33-15-12-01, shall be used to determine compliance with paragraph 1 of subdivision e of this subsection as follows: Reference methods in appendix A of this chapter, except as provided under subdivision b of subsection 7 of section 33-15-12-01, must be used to determine compliance with paragraph 1 of subdivision c as follows:

- (a) Method 5 for the measurement of particulate matter. Method 1 for sample velocity traverses;
- (b) Method 1 for sample and velocity traverses. Method 2 for velocity and volumetric flow rate;
- (c) Method 2 for velocity and volumetric flow rate. Method 3 for gas analysis;
- (d) Method 3 for gas analysis. Method 4 for stack gas moisture;
- (e) Method 4 for stack gas moisture. Method 5 or 5D for the measurement of particulate matter; and
- (f) Method 9 for visible emissions.

- (2) For Method 5, the sampling time for each run shall be at least sixty minutes and the sampling rate shall be at least eighty-five-hundredths standard cubic meter per hour {0.53 dscf/min}, dry basis, except that shorter sampling times, when necessitated by process variables or other factors, may be approved by the department. For method 5 or 5D, the sampling time for each run must be at least sixty minutes, and the sampling rate must be at least 0.85 std m³/h, dry basis [0.53 dscf/min], except that shorter sampling times, when necessitated by process variables or other factors, may be approved by the department.
- (3) Because of the high moisture content (forty to eighty-five percent by volume) of the exhaust gases from hydrators, the Method 5 sample train may be modified to include a calibrated orifice immediately following the sample nozzle when testing lime hydrators. In this configuration, the sampling rate necessary for maintaining isokinetic conditions can be directly related to exhaust gas velocity without a correction for moisture content. Extra care should be exercised when cleaning the sample train with the orifice in this position following the test runs. Visible emission observations of positive-pressure fabric filters shall occur during normal operation of the rotary lime kiln, at least once per day of operation. For at least three 6-minute periods, the opacity must be recorded and maintained for any points where visible emissions are observed, and the corresponding feed rate of the kiln must also be recorded and maintained. These observations must be taken in accordance with method 9. Records shall be maintained of any six-minute average that is in excess of the emissions limit specified in paragraph 1 of subdivision c of this subsection.

~~18-~~ 19. Standards of performance for stationary gas turbines.

- a. Applicability and designation of affected facility. The provisions of this subsection are applicable to the following affected facilities; all stationary gas turbines with a heat input at peak load equal to or greater than 10.7 gigajoules per hour [10 million Btu/hour], based on the lower heating value of the fuel fired. Any facility that commences construction after October 3, 1977, is subject to the requirements of this subsection.

- b. Definitions. As used in this subsection, all terms not defined herein shall have the meaning given them in section 33-15-12-01.
- (1) "Base load" means the load level at which a gas turbine is normally operated.
 - (2) "Combined cycle gas turbine" means any stationary gas turbine which recovers heat from the gas turbine exhaust gases to heat water or generate steam.
 - (3) "Efficiency" means the gas turbine manufacturer's rated heat rate at peak load in terms of heat input per unit of power output based on the lower heating value of the fuel.
 - (4) "Electric utility stationary gas turbine" means any stationary gas turbine constructed for the purpose of supplying more than one-third of its potential electric output capacity to any utility power distribution system for sale.
 - (5) "Emergency fuel" is a fuel fired by a gas turbine only during circumstances, such as natural gas supply curtailment or breakdown of delivery system, that make it impossible to fire natural gas in the gas turbine.
 - (6) "Emergency gas turbine" means any stationary gas turbine which operates as a mechanical or electrical power source only when the primary power source for a facility has been rendered inoperable by an emergency situation.
 - ←5→ (7) "Firefighting turbine" means any stationary gas turbine that is used solely to pump water for extinguishing fires.
 - ←6→ (8) "Garrison facility" means any permanent military installation.
 - ←7→ (9) "Gas turbine model" means a group of gas turbines having the same nominal air flow, combustor inlet pressure, ~~combuster~~ combustor inlet temperature, firing temperature, turbine inlet temperature, and turbine inlet pressure.
 - ←8→ (10) "Ice fog" means an atmospheric suspension of highly reflective ice crystals.
 - ←9→ (11) "ISO standard day conditions" means two hundred eighty-eight degrees Kelvin, sixty percent relative humidity and 101.3 kilopascals pressure.

- ~~(10)~~ (12) "Metropolitan statistical area" is as defined by the department of commerce.
- ~~(11)~~ (13) "Peak load" means one hundred percent of the manufacturer's design capacity of the gas turbine at ISO standard day conditions.
- ~~(12)~~ (14) "Regenerative cycle gas turbine" means any stationary gas turbine which recovers heat from the gas turbine exhaust gases to preheat the inlet combustion air to the gas turbine.
- (15) "Regenerative cycle gas turbine" means any stationary gas turbine that recovers thermal energy from the exhaust gases and utilizes the thermal energy to preheat air prior to entering the combustor.
- ~~(13)~~ (16) "Simple cycle gas turbine" means any stationary gas turbine which does not recover heat from the gas turbine exhaust gases to preheat the inlet combustion air to the gas turbine, or which does not recover heat from the gas turbine exhaust gases to heat water or generate steam.
- ~~(14)~~ (17) "Stationary gas turbine" means any simple cycle gas turbine, regenerative cycle gas turbine, or any gas turbine portion of a combined cycle steam/electric generating system that is not self-propelled. It may, however, be mounted on a vehicle for portability.
- ~~(15)~~ (18) "Turbines employed in oil/gas production or oil/gas transportation" means any stationary gas turbine used to provide power to extract crude oil/natural gas from the earth or to move crude oil/natural gas, or products refined from the substances through pipelines.

c. Standard for nitrogen oxides.

- (1) On and after the date on which the performance test required by subsection 7 of section 33-15-12-01 is completed, every owner or operator subject to the provisions of this subsection, as specified in paragraphs 2, 3, and 4 shall comply with one of the following, except as provided in paragraphs 5, 6, 7, 8, ~~and~~ 9, 10, and 11.
- (a) No owner or operator subject to the provisions of this subsection ~~shall~~ may cause to be discharged into the atmosphere from any stationary gas turbine, any gases which contain nitrogen oxides in excess of:

$$\text{STD} = 0.0075 \frac{(14.4)}{Y} + F$$

where:

STD = allowable NO₂ emissions (percent by volume at 15 percent oxygen and on a dry basis).

Y = manufacturer's rated load (kilojoules per watt hour) or, actual measured heat rate based on lower heating value of fuel as measured at actual peak load for the facility. The value of Y ~~shall~~ may not exceed 14.4 kilojoules per watt hour.

F = NO₂ emission allowance for fuel-bound nitrogen as defined in subparagraph c.

- (b) No owner or operator subject to the provisions of this subsection ~~shall~~ may cause to be discharged into the atmosphere from any stationary gas turbine, any gases which contain nitrogen oxides in excess of:

$$\text{STD} = 0.0150 \frac{(14.4)}{Y} + F$$

where:

STD = allowable NO₂ emissions (percent by volume at 15 percent oxygen and on a dry basis).

Y = manufacturer's rated heat rate at manufacturer's rated peak load (kilojoules per watt hour), or actual measured heat rate based on lower heating value of fuel as measured at actual peak load for the facility. The value of Y ~~shall~~ may not exceed 14.4 kilojoules per watt hour.

F = NO₂ emission allowance for fuel-bound nitrogen as defined in subparagraph c.

- (c) F ~~shall~~ must be defined according to the nitrogen content of the fuel as follows:

<u>Fuel-Bound Nitrogen</u> <u>(percent by weight)</u>	<u>F</u> <u>(NO_x percent by volume)</u>
$N \leq 0.015$	0
$0.015 < N \leq 0.1$	0.04(N)
$0.1 < N \leq 0.25$	$0.004 + 0.0057(N-0.1)$
$N > 0.25$	0.005

where:

N = the nitrogen content of the fuel
(percent by weight)

or:

Manufacturers may develop custom fuel-bound nitrogen allowances for each gas turbine model they manufacture. These fuel-bound nitrogen allowances ~~shall~~ must be substantiated with data and must be approved for use by the department before the initial performance test required by subsection 7 of section 33-15-12-01.

- (2) **Stationary Electric utility stationary gas turbines with a heat input at peak load greater than 107.2 gigajoules per hour [100 million Btu/hour] based on the lower heating value of the fuel fired ~~except as provided in paragraph 4~~ shall comply with the provisions of subparagraph a of paragraph 1.**
- (3) Stationary gas turbines with a heat input at peak load equal to or greater than 10.7 gigajoules per hour [10 million Btu/hour] but less than or equal to 107.2 gigajoules per hour [100 million Btu/hour] based on the lower heating value of the fuel fired, shall comply with the provisions of subparagraph b of paragraph 1.
- (4) **Stationary gas turbines employed in oil/gas production or oil/gas transportation and not located in metropolitan statistical areas shall comply with the provisions of subparagraph b of paragraph 1 with a manufacturer's rated base load at ISO conditions of thirty megawatts or less except as provided in paragraph 2 shall comply with subparagraph b of paragraph 1.**
- (5) Stationary gas turbines with a heat input at peak load equal to or greater than 10.7 gigajoules per

hour [10 million Btu/hour] but less than or equal to 107.2 gigajoules per hour [100 million Btu/hour] based on the lower heating value of the fuel fired and that have commenced construction prior to October 3, 1982, are exempt from paragraph 1.

- (6) Stationary gas turbines using water or steam injection for control of nitrogen oxide emissions are exempt from paragraph 1 when ice fog is deemed a traffic hazard by the owner or operator of the gas turbine.
- (7) Emergency gas turbines, military gas turbines for use in other than a garrison facility, military gas turbines installed for use as military training facilities, and firefighting gas turbines are exempt from paragraph 1.
- (8) Stationary gas turbines engaged by manufacturers in research and development of equipment for both gas turbine emission control techniques and gas turbine efficiency improvements are exempt from paragraph 1 on a case-by-case basis as determined by the department.
- (9) Exemptions from the requirements of paragraph 1 will be granted on a case-by-case basis as determined by the department in specific geographical areas where mandatory water restrictions are required by governmental agencies because of drought conditions. These exemptions will be allowed only while the mandatory water restrictions are in effect.
- (10) Stationary gas turbines with a heat input greater than or equal to 10.7 gigajoules per hour [10 million Btu/hour] when fired with natural gas are exempt from subparagraph b of paragraph 1 when being fired with an emergency fuel.
- (11) Regenerative cycle gas turbines with a heat input less than or equal to 107.2 gigajoules per hour [100 million Btu/hour] are exempt from paragraph 1.

d. Standard for sulfur dioxide. On and after the date on which the performance test required to be conducted by subsection 7 of section 33-15-12-01 is completed, every owner or operator subject to the provision of this subsection shall comply with one or the other of the following conditions:

- (1) No owner or operator subject to the provisions of this subsection ~~shall~~ may cause to be discharged into the atmosphere from any stationary gas turbine

any gases which contain sulfur dioxide in excess of 0.015 percent by volume at fifteen percent oxygen and on a dry basis.

- (2) No owner or operator subject to the provisions of this subsection ~~shall~~ may burn in any stationary gas turbine any fuel which contains sulfur in excess of 0.8 percent by weight.

e. Monitoring ~~of~~ of operations.

- (1) The owner or operator of any stationary gas turbine subject to the provisions of this subsection and using water injection to control nitrogen oxide emissions shall install and operate a continuous monitoring system to monitor and record the fuel consumption and the ratio of water to fuel being fired in the turbine. This system ~~shall~~ must be accurate to within \pm five percent and ~~shall~~ must be approved by the department.

- (2) The owner or operator of any stationary gas turbine subject to the provisions of this subsection shall monitor sulfur content and nitrogen content of the fuel being fired in the turbine. The frequency of determination of these values ~~shall~~ must be as follows:

- (a) If the turbine is supplied its fuel from a bulk storage tank, the values ~~shall~~ must be determined on each occasion that fuel is transferred to the storage tank from any other source.

- (b) If the turbine is supplied its fuel without intermediate bulk storage, the values ~~shall~~ must be determined and recorded daily. Owners, operators, or fuel vendors may develop custom schedules for determination of the values based on the design and operation of the affected facility and the characteristics of the fuel supply. These custom schedules ~~shall~~ must be substantiated with data and must be approved by the department before they can be used to comply with this paragraph.

- (3) For the purpose of reports required under subdivision c of subsection 6 of section 33-15-12-01, periods of excess emissions that ~~shall~~ must be reported are defined as follows:

- (a) Nitrogen oxides. Any one-hour period during which the average water-to-fuel ratio, as

measured by the continuous monitoring system, falls below the water-to-fuel ratio determined to demonstrate compliance with subdivision c by the performance test required in subsection 7 of section 33-15-12-01 of any period during which the fuel-bound nitrogen of the fuel is greater than the maximum nitrogen content allowed by the fuel-bound nitrogen allowance used during the performance test required in subsection 7 of section 33-15-12-01. Each report shall include the average water-to-fuel ratio, average fuel consumption, ambient conditions, gas turbine load, and nitrogen content of the fuel during the period of excess emissions, and the graphs or figures developed under paragraph 1 of subdivision f.

- (b) Sulfur dioxide. Any daily period during which the sulfur content of the fuel being fired in the gas turbine exceeds 0.8 percent.
- (c) Ice fog. Each period during which an exemption provided in paragraph 7 of subdivision c is in effect ~~shall~~ must be reported in writing to the department quarterly. For each period, the ambient conditions existing during the period, the date and time the air pollution control system was deactivated, and the date and time the air pollution control system was reactivated ~~shall~~ must be reported. All quarterly reports ~~shall~~ must be postmarked by the thirtieth day following the end of each calendar quarter.
- (d) Emergency fuel. Each period during which an exception provided in paragraph 10 of subdivision c is in effect must be included in the report required in subdivision c of subsection 6 of section 33-15-12-01. For each period, the type, reasons, and duration of the firing of the emergency fuel must be reported.

f. Test methods and procedures.

- (1) The reference methods in ~~Appendix~~ appendix A to this chapter, except as provided in subdivision b of subsection 7 of section 33-15-12-01 ~~shall~~ must be used to determine compliance with the standards prescribed in subdivision c as follows:

- (a) Reference ~~Method~~ method 20 for the concentration of nitrogen oxides and oxygen. For affected facilities under this subsection,

the span value ~~shall~~ must be three hundred parts per million of nitrogen oxides.

[1] The nitrogen oxides emission level measured by ~~Reference Method~~ reference method 20 ~~shall~~ must be adjusted to ISO standard day conditions by the following ambient condition correction factor:

$$NO_x = (NO_{x_{obs}}) \left(\frac{P_{ref}}{P_{obs}} \right)^{0.5e^{19}} (H_{obs} - 0.00633) \left(\frac{T_{AMB}}{2880K} \right)^{1.53}$$

where:

NO_x = emissions of NO_x at 15 percent oxygen and ISO standard ambient conditions.

$NO_{x_{obs}}$ = measured NO_x emissions at 15 percent oxygen ppmv.

P_{ref} = reference combustor inlet absolute pressure at 101.3 kilopascals ambient pressure.

P_{obs} = measured combustor inlet absolute pressure at test ambient pressure.

H_{obs} = specific humidity of ambient air at test.

e = transcendental constant (2.718)

T_{AMB} = temperature of ambient air at test.

The adjusted nitrogen oxide emission level ~~shall~~ must be used to determine compliance with subdivision c.

[2] Manufacturers may develop custom ambient condition correction factors for each gas turbine model they manufacture in terms of combustor inlet pressure, ambient air pressure, ambient air humidity, and ambient air temperature to adjust the nitrogen oxides emission level measured by the performance test as provided for in subsection 7 of section 33-15-12-01 to ISO standard day conditions. These ambient condition correction factors ~~shall~~ must be substantiated with data and must be approved for use by the department and administrator before the initial performance test required by subsection 7 of section 33-15-12-01.

[3] The water-to-fuel ratio necessary to comply with subdivision c will be determined during the initial performance test by measuring nitrogen oxide emission using ~~Reference Method~~ reference method 20 and the water-to-fuel ratio necessary to comply with subdivision c at thirty, fifty, seventy-five, and one hundred percent of peak load or at four points in the normal operating range of the gas turbine, including the minimum point in the range and peak load. All loads ~~shall~~ must be corrected to ISO standard day conditions using the appropriate equation supplied by the manufacturer.

(b) The analytical methods and procedures employed to determine the nitrogen content of the fuel being fired ~~shall~~ must be approved by the department and ~~shall~~ must be accurate to within \pm five percent.

(2) The method for determining compliance with subdivision d, except as provided in subdivision b of subsection 7 of section 33-15-12-01, ~~shall~~ must be as follows:

(a) Reference ~~Method~~ method 20 for the concentration of sulfur dioxide and oxygen; or

(b) American society of testing and materials D2880-71 for the sulfur content of liquid fuels and American society of testing and materials ~~D1072-70~~ D1072-80, D3031-81, D4084-82, or D3246-81 for the sulfur content of gaseous fuels. These methods ~~shall~~ must also be used

to comply with paragraph 2 of subdivision e. The applicable ranges of some A.S.T.M. methods mentioned above are not adequate to measure the levels of sulfur in some fuel gases. Dilution of samples prior to analysis (with verification of the dilution ratio) is allowable subject to the approval of the department.

- (3) Analysis for the purpose of determining the sulfur content and the nitrogen content of the fuel as required by paragraph 2 of subdivision e, may be performed by the owner/operator, a service contractor retained by the owner/operator, the fuel vendor, or any other qualified agency; provided, that the analytical methods employed by these agencies comply with the applicable paragraphs of this subdivision.

~~19-~~ **20. Standards of performance for grain elevators.**

- a. Applicability and designation of affected facility. The provisions of this subsection apply to each affected facility at any grain terminal elevator or any grain storage elevator, except as provided under subdivision e. The affected facilities are each truck loading or unloading station, barge and ship loading or unloading station, railcar loading or unloading station, grain dryer, and all grain handling operations. Any facility which commences construction, modification, or reconstruction, after August 3, 1978, is subject to the requirements of this subsection.
- b. Definitions. As used in this subsection, all terms not defined herein shall have the meaning given them in ~~the~~ North Dakota Century Code chapter 23-25 and in section 33-15-12-01.
 - (1) "Capture system" means the equipment such as sheds, hoods, ducts, fans, dampers, etc., used to collect particulate matter generated by an affected facility at a grain elevator.
 - (2) "Column dryer" means any equipment used to reduce the moisture content of grain in which the grain flows from the top to the bottom in one or more continuous packed columns between two perforated metal sheets.
 - (3) "Fugitive emission" means the particulate matter which is not collected by a capture system and is released directly into the atmosphere from an affected facility at a grain elevator.

- (4) "Grain elevator" means any plant or installation at which grain is unloaded, handled, cleaned, dried, stored, or loaded.
- (5) "Grain handling operations" include bucket elevators or legs (excluding legs used to unload barges or ships), scale hoppers and surge bins (garners), turn heads, scalpers, cleaners, trippers, and the headhouse and other such structures.
- (6) "Grain loading station" means that portion of a grain elevator where the grain is transferred from the elevator to a truck, railcar, barge, or ship.
- (7) "Grain" means corn, wheat, sorghum, rice, rye, oats, barley, and soybeans.
- (8) "Grain storage elevator" means any grain elevator located at any wheat flour mill, wet corn mill, dry corn mill (human consumption), rice mill, or soybean oil extraction plant which has a permanent grain storage capacity of thirty-five thousand two hundred cubic meters [circa 1,000,000 bushels].
- (9) "Grain terminal elevator" means any grain elevator which has a permanent storage capacity of more than eighty-eight thousand one hundred cubic meters [circa 2,500,000 bushels], except those located at animal food manufacturers, pet food manufacturers, cereal manufacturers, breweries, and livestock feedlots.
- (10) "Grain unloading station" means that portion of a grain elevator where the grain is transferred from a truck, railcar, barge, or ship to a receiving hopper.
- (11) "Permanent storage capacity" means grain storage capacity which is inside a building, bin, or silo.
- (12) "Process emission" means the particulate matter which is collected by a capture system.
- (13) "Rack dryer" means any equipment used to reduce the moisture content of grain in which the grain flows from the top to the bottom in a cascading flow around rows of baffles (racks).
- (14) "Railcar" means railroad hopper car or boxcar.
- (15) "Unloading leg" means a device which includes a bucket-type elevator which is used to remove grain from a barge or ship.

c. Standard for particulate matter.

- (1) On and after the sixtieth day of achieving the maximum production rate at which the affected facility will be operated, but no later than one hundred eighty days after initial startup, no owner or operator subject to the provisions of this subsection ~~shall~~ may cause to be discharged into the atmosphere any gases which exhibit greater than zero percent opacity from any:
 - (a) Column dryer with column plate perforation exceeding two and four-tenths millimeters diameter [circa 0.094 inch].
 - (b) Rack dryer in which exhaust gases pass through a screen filter coarser than fifty mesh.

- (2) On and after the date on which the performance test required to be conducted by subsection 7 of section 33-15-12-01 is completed, no owner or operator subject to the provisions of this subsection ~~shall~~ may cause to be discharged into the atmosphere from any affected facility except a grain dryer any process emission which:
 - (a) Contains particulate matter in excess of 0.023 gram per dry cubic meter at standard conditions [circa 0.01 gr/dscf].
 - (b) Exhibits greater than zero percent opacity.

- (3) On and after the sixtieth day of achieving the maximum production rate at which the affected facility will be operated, but no later than one hundred eighty days after initial startup, no owner or operator subject to the provisions of this subsection ~~shall~~ may cause to be discharged into the atmosphere any fugitive emission from:
 - (a) Any individual truck unloading station, railcar unloading station, or railcar loading station, which exhibits greater than five percent opacity.
 - (b) Any grain handling operation which exhibits greater than zero percent opacity.
 - (c) Any truck loading station which exhibits greater than ten percent opacity.
 - (d) Any barge or ship loading station which exhibits greater than twenty percent opacity.

(4) The owner or operator of any barge or ship unloading station shall operate as follows:

- (a) The unloading leg ~~shall~~ must be enclosed from the top (including the receiving hopper) to the centerline of the bottom pulley and ventilation to a control device ~~shall~~ must be maintained on both sides of the leg and the grain receiving hopper.
- (b) The total rate of air ventilated ~~shall~~ must be at least thirty-two and one-tenth actual cubic meters per cubic meter of grain handling capacity [circa 40 cubic feet per bushel].
- (c) Rather than meet the requirements of subparagraphs a and b, the owner or operator may use other methods of emission control if it is demonstrated to the department's satisfaction that they would reduce emissions of particulate matter to the same level or less.

d. Test methods and procedures.

(1) Reference methods in ~~Appendix~~ appendix A to this chapter, except as provided under subdivision b of subsection 7 of section 33-15-12-01 ~~shall~~ must be used to determine compliance with the standard prescribed under subdivision c as follows:

- (a) Method 5 or 17 for concentration of particulate matter and associated moisture content.
- (b) Method 1 for sample and velocity traverses.
- (c) Method 2 for velocity and volumetric flow rate.
- (d) Method 3 for gas analysis.
- (e) Method 9 for visible emissions.

(2) For ~~Method~~ method 5, the sampling probe and filter holder ~~shall~~ must be operated without heaters. The sampling time for each run, using ~~Method~~ method 5 or 17, ~~shall~~ must be at least sixty minutes. The minimum sample volume ~~shall~~ must be 1.7 dry cubic meter at standard conditions [circa 60 dscf].

e. Modifications.

(1) The factor 6.5 ~~shall~~ must be used in place of "annual asset guidelines repair allowance percentage", to determine whether a capital

expenditure as defined by subdivision c of subsection 2 of section 33-15-12-01 has been made to an existing facility.

- (2) The following physical changes or changes in the method of operation ~~shall~~ may not by themselves be considered a modification of any existing facility:
 - (a) The addition of gravity loadout spouts to existing grain storage or grain transfer bins.
 - (b) The installation of automatic grain weighing scales.
 - (c) Replacement of motor and drive units driving existing grain handling equipment.
 - (d) The installation of permanent storage capacity with no increase in hourly grain handling capacity.

21. Standards of performance for onshore natural gas processing; sulfur dioxide emissions.

a. Applicability and designation of affected facilities.

- (1) The provisions of this subsection are applicable to the following affected facilities that process natural gas: each sweetening unit, and each sweetening unit followed by a sulfur recovery unit.
- (2) Facilities that have a design capacity less than two long tons [2.032 metric tons] per day (LT/D) of hydrogen sulfide (H₂S) in the acid gas (expressed as sulfur) are required to comply with paragraph 3 of subdivision h but are not required to comply with subdivisions c through g.
- (3) The provisions of this subsection are applicable to facilities located on land and include facilities located onshore which process natural gas produced from either onshore or offshore wells.
- (4) The provisions of this subsection apply to each affected facility identified in paragraph 1 of this subdivision which commences construction or modification after January 20, 1984.
- (5) The provisions of this subsection do not apply to sweetening facilities producing acid gas that is completely reinjected into oil-bearing or gas-bearing geologic strata or that is otherwise not released to the atmosphere.

b. Definitions. As used in the section, all terms not defined herein shall have the meaning given them in North Dakota Century Code chapter 23-25 and in subsection 2 of section 33-15-12-01.

- (1) "Acid gas" means a gas stream of hydrogen sulfide (H_2S) and carbon dioxide (CO_2) that has been separated from sour natural gas by a sweetening unit.
- (2) "E" equals the sulfur emission rate expressed as elemental sulfur, kilograms per hour (kg/hr) rounded to one decimal place.
- (3) "Natural gas" means a naturally occurring mixture of hydrocarbon and nonhydrocarbon gases found in geologic formations beneath the earth's surface. The principal hydrocarbon constituent is methane.
- (4) "Onshore" means all facilities except those that are located in the territorial seas or on the outer continental shelf.
- (5) "Reduced sulfur compounds" means hydrogen sulfide (H_2S), carbonyl sulfide (COS), and carbon disulfide (CS_2).
- (6) "R" equals the sulfur emission reduction efficiency achieved in percent, carried to one decimal place.
- (7) "S" equals the sulfur production rate in kilograms per hour (kg/hr) rounded to one decimal place.
- (8) "Sulfur production rate" means the rate of liquid sulfur accumulation from the sulfur recovery unit.
- (9) "Sulfur recovery unit" means a process device that recovers element sulfur from acid gas.
- (10) "Sweetening unit" means a process device that separates the hydrogen sulfide and carbon dioxide contents from the sour natural gas stream.
- (11) "Total sulfur dioxide equivalents" means the sum of volumetric or mass concentrations of the sulfur compounds obtained by adding the quantity existing as sulfur dioxide to the quantity of sulfur dioxide that would be obtained if all reduced sulfur compounds were converted to sulfur dioxide (ppmv or kg/dscm).
- (12) "X" equals the sulfur feed rate, i.e., the hydrogen sulfide in the acid gas (expressed as sulfur) from the sweetening unit, expressed in long tons per day (LT/D) of sulfur rounded to one decimal place.

- (13) "Y" equals the sulfur content of the acid gas from the sweetening unit, expressed as mole percent hydrogen sulfide (dry basis) rounded to one decimal place.
- (14) "Z" equals the minimum required sulfur dioxide emission reduction efficiency, expressed as percent carried to one decimal place. Z_i refers to the reduction efficiency required at the initial performance test. Z_c refers to the reduction efficiency required on a continuous basis after compliance with Z_i has been demonstrated.

c. Standards for sulfur dioxide.

- (1) During the initial performance test required by subdivision b of subsection 7 of section 33-15-12-01, each owner or operator shall achieve at a minimum, a sulfur dioxide emission reduction efficiency (Z_i) to be determined from table 1 based on the sulfur feed rate (X) and the sulfur content of the acid gas (Y) of the affected facility.
- (2) After demonstrating compliance with the provisions of paragraph 1 of this subdivision, the owner or operator shall achieve at a minimum, a sulfur dioxide emission reduction efficiency (Z_c) to be determined from table 2 based on the sulfur feed rate (X) and the sulfur content of the acid gas (Y) of the affected facility.

d. Compliance provisions.

- (1) To determine compliance with the standards for sulfur dioxide specified in paragraph 1 of subdivision c, during the initial performance test as required by subsection 7 of section 33-15-12-01, the minimum required sulfur dioxide emission reduction efficiency (Z) is compared to the emission reduction efficiency (R) achieved by the sulfur recovery technology.
- (a) If R equals Z_i , the affected facility is in compliance.
- (b) If $R < Z_i$, the affected facility is not in compliance.
- (2) Following the initial determination of compliance as required by subsection 7 of section 33-15-12-01, any subsequent compliance determinations that may be required by the department would compare R to Z_c .

(a) The emission reduction efficiency (R) achieved by the sulfur recovery technology is calculated by using the equation:

$$R = \frac{S}{S+E} \times 100$$

"S" and "E" are determined using the procedures and test methods specified in subdivisions e and f.

TABLE 1.
Required Minimum Initial SO₂ Emission
Reduction Efficiency (Z_i)

H ₂ S content of acid gas (Y), %	Sulfur feed rate (X), LT/D			
	2.0 =x=5.0	5.0:X=15.0	15.0:X=300.0	X 300.0
Y=50	79.0	88.51X ^{0.0101} Y ^{0.0125} or 99.8, whichever is smaller		
20=Y:50	79.0	88.51X ^{0.0101} Y ^{0.0125} or 97.9, whichever is smaller		97.9
10=Y:20	79.0	88.51X ^{0.0101} Y ^{0.0125} or 93.5, whichever is smaller	93.5	93.5
Y:10	79.0	79.0	79.0	79.0

TABLE 2
Required Minimum SO₂ Emission
Reduction Efficiency (Z_c)

of acid gas (O), %	H ₂ S content			
	2.0 =x=5.0	5.0:X=15.0	15.0:X=300.0	X 300.0
Y=50	74.0	85.35X ^{0.0144} Y ^{0.0128} or 99.8, whichever is smaller		
20=Y:50	74.0	85.35X ^{0.0144} Y ^{0.0128} or 97.5, whichever is smaller		97.5
10=Y:20	74.0	85.35X ^{0.0144} Y ^{0.0128} or 90.8, whichever is smaller	90.8	90.8
Y:10	74.0	74.0	74.0	74.0

e. Performance test procedures.

(1) During a performance test required by subsection 7 of section 33-15-12-01, the minimum required sulfur dioxide emission reduction efficiency (Z_i) required by paragraph 1 of subdivision c and the minimum required sulfur dioxide emission reduction efficiency (Z_c) required by paragraph 2 of subdivision c are determined as follows:

(a) Collect and analyze at least one sample per hour (at equally spaced intervals during the performance test) of the acid gas from the sweetening unit using the method specified in subparagraph h of paragraph 1 of subdivision f. The units of the result from the tutwiler procedure can be converted to volume percent using the following equation:

$$Y = (1.62 \times 10^{-3})X(\text{grains}/100 \text{ scf})$$

where:

$Y = \text{H}_2\text{S}$ concentration, volume percent:

$1.62 \times 10^{-3} = \text{volume percent per grains}/100 \text{ scf}; \text{ and grains}/100\text{scf} = \text{tutwiler result basis.}$

(b) Calculate the arithmetic mean of all samples to determine the average hydrogen sulfide concentration (Y) in mole percent (dry basis) in the acid gas.

(c) Determine the average volumetric flow rate of the acid gas from the sweetening unit by continuous measurements made with the process flow meter. Express the results as dry standard cubic feet per day (dscf/day).

(d) Calculate the average sulfur feed rate (X) in long tons per day of elemental sulfur from the average volumetric flow rate and the average hydrogen sulfide content (from paragraph 1 of subdivision e) by the equation:

$$X = \frac{(\text{average volumetric acid gas flow, dscf/day}) (Y/100) (32 \text{ lb/lb mole})}{(385.36 \text{ standard cubic feet/lb mole}) (2,240 \text{ lbs/long ton})}$$

(e) Determine the minimum required sulfide dioxide removal efficiency (Z_i or Z_c) in accordance with

the provisions of the standards in paragraph 1 or 2 of subdivision c as appropriate.

(2) The actual sulfur emission reduction efficiency (R) achieved by the control technology during the performance test is determined as follows:

(a) Measure the liquid sulfur accumulation rate in the product storage tanks using level indicators or manual soundings. Record the level reading at the beginning and end of each test run. Convert the level readings to mass (kilograms) of sulfur in the storage tanks, using the tank geometry and the sulfur density at the temperature of storage. Divide the change in mass by the test duration (hours and fractions of hours) to determine the sulfur production rate in kilograms per hour for each run.

(b) Calculate the arithmetic mean of the rate for each run to determine the average sulfur production rate (S) to use in subparagraph a of paragraph 2 of subdivision d.

(c) Measure the concentrations of sulfur dioxide and total reduced sulfur compounds in the incinerator (or other final processing unit) exhaust gas using the methods specified in subparagraphs e through g of paragraph 1 of subdivision f. The minimum sampling time for each run shall be four hours. For each run the sulfur dioxide and total reduced sulfur concentrations must be combined to calculate the total sulfur dioxide equivalent concentration as follows:

$$\begin{aligned} &\text{Total SO}_2 \text{ equivalent, (kg/dscm)} \\ &= 0.001 (\text{SO}_2 \text{ concentration mg/dscm from} \\ &\quad \text{method 6}) \\ &\quad - 2.704 \times 10^{-6} (\text{SO}_2 \text{ equivalents in ppmv.} \\ &\quad \text{dry from method 15 or from method 16A}) \end{aligned}$$

(d) Measure the incinerator (or other final processing unit) exhaust gas velocity, molecular weight, and moisture content using the methods specified in subparagraphs a through d of paragraph 1 of subdivision f. Calculate the volumetric flow rate of the exhaust gas at dry standard conditions using equation 2-10 in method 2.

(e) Calculate the equivalent sulfur emission rate as elemental sulfur for each run as follows:

$$\frac{\text{Sulfur emission rate}}{= (\text{total SO}_2 \text{ equivalent kg/dscm}) (\text{gas flow rate, dscm/hr}) (0.50)}$$

Calculate the arithmetic mean of the sulfur emission rate for each run to determine the average sulfur emission rate (E) to use in subparagraph a of paragraph 2 of subdivision d.

f. Performance test methods.

(1) For the purpose of determining compliance with paragraph 1 or 2 of subdivision c, the following reference methods must be used:

(a) Method 1 for velocity traverse points selection.

(b) Method 2 for determination of stack gas velocity and calculation of the volumetric flow rate.

(c) Method 3 for determination of stack gas molecular weight.

(d) Method 4 for determination of the stack gas moisture content.

(e) Method 6 for determination of sulfur dioxide concentration.

(f) Method 15 for determination of the total reduced sulfur concentration from reduction-type devices or where the oxygen content of the stack gas is less than one percent by volume.

(g) Method 16A for determination of the total reduced sulfur concentration from oxidation-type devices or where the oxygen content of the stack gas is greater than one percent by volume.

(h) The tutwiler procedure in subdivision i or a chromatographic procedure following A.S.T.M. E-260, which is incorporated by reference, for determination of the hydrogen sulfide concentration in the acid gas feed from the sweetening unit.

(2) The sampling location for methods 3, 4, 6, 15, and 16A must be the same as that used for velocity measurements by method 2. The sampling point in the duct must be at the centroid of the cross section if

the area is less than five m² [54 ft²] or at a point no closer to the walls than one meter [39 inches] if the cross-sectional area is five m² [54 ft²] or more, and the centroid is more than one meter from the wall. For methods 3, 4, 6, and 16A, the sample must be extracted at a rate proportional to the gas velocity at the sampling point. For method 15, the minimum sampling rate must be three liters per minute [0.1 ft³/minute] to ensure minimum residence time in the sample line.

- (3) For methods 6 and 16A the minimum sampling time for each run must be four hours. Either one sample or a number of separate samples may be collected for each run so long as the total sample time is four hours. Where more than one sample is collected per run, the average result for the run is calculated by:

$$C_s = \frac{\sum_{i=1}^n (C_{si}) (t_{si}/T)}{n}$$

where:

C_s = time-weighted average SO₂ or TRS concentration for the run, (mg/dscm or ppmv, dry)

n = number of samples collected during the run

C_{si} = SO₂ or TRS concentration for sample i, (mg/dscm or ppmv, dry)

t_{si} = sampling time for sample i, (minutes)

T = total sampling time for all samples in the run (minutes)

- (4) For method 15, each run shall consist of sixteen samples taken over a minimum of four hours. The equivalent sulfur dioxide concentration for each run must be calculated as the arithmetic average of the sulfur dioxide equivalent concentration for each sample.
- (5) For method 2, a velocity traverse must be conducted at the beginning and end of each run. The arithmetic average of the two measurements must be used to calculate the volumetric flow rate for each run.

(6) For method 3, a single sample may be integrated over the four-hour run interval and analysis, or grab samples at one-hour intervals may be collected, analyzed, and averaged to determine the stack gas composition.

(7) For method 4, each run shall consist of two samples; one collected at the beginning of the four-hour test period, and one near the end of the period. For each sample the minimum sample volume must be 0.1 dscm [0.35 dscf] and the minimum sample time must be ten minutes.

g. Monitoring of emissions and operations.

(1) The owner or operator subject to the provisions of paragraphs 1 or 2 of subdivision c shall install, calibrate, maintain, and operate monitoring devices or perform measurements to determine the following operations information on a daily basis:

(a) The accumulation of sulfur product over each twenty-four-hour period: The monitoring method may incorporate the use of an instrument to measure and record the liquid sulfur production rate, or may be a procedure for measuring and recording the sulfur liquid levels in the storage tanks with a level indicator or by manual soundings, with subsequent calculation of the sulfur production rate based on the tank geometry, stored sulfur density, and elapsed time between readings. The method shall be designed to be accurate within ± 2 percent of the twenty-four-hour sulfur accumulation.

(b) The hydrogen sulfide concentration in the acid gas from the sweetening unit for each twenty-four-hour period: At least one sample per twenty-four-hour period must be collected and analyzed using the method specified in subparagraph h of paragraph 1 of subdivision f. The department may require the owner or operator to demonstrate that the hydrogen sulfide concentration obtained from one or more samples over a twenty-four-hour period is within ± 20 percent of the average of twelve samples collected at equally spaced intervals during the twenty-four-hour period. In instances where the hydrogen sulfide concentration of a single sample is not within ± 20 percent of the average of the twelve equally spaced samples, the department may require a more frequent sampling schedule.

(c) The average acid gas flow rate from the sweetening unit: The owner or operator shall install and operate a monitoring device to continuously measure the flow rate of acid gas. The monitoring device reading must be recorded at least once per hour during each twenty-four-hour period. The average acid gas flow rate must be computed from the individual readings.

(d) The sulfur feed rate (X): For each twenty-four-hour period, X must be computed using the equation in subparagraph e of paragraph 1 of subdivision e.

(e) The required sulfur dioxide emission reduction efficiency for the twenty-four-hour period: The sulfur feed rate and the hydrogen sulfide concentration in the acid gas for the twenty-four-hour period as applicable, must be used to determine the required reduction efficiency in accordance with the provisions of paragraph 2 of subdivision c.

(2) Where compliance is achieved through the use of an oxidation control system or a reduction control system followed by a continually operated incineration device, the owner or operator shall install, calibrate, maintain, and operate monitoring devices and continuous emission monitors as follows:

(a) A continuous monitoring system to measure the total sulfur emission rate (E) of sulfur dioxide in the gases discharged to the atmosphere. The sulfur dioxide emission rate must be expressed in terms of equivalent sulfur mass flow rates (kg/hr). The span of this monitoring system must be set so that the equivalent emission limit of paragraph 2 of subdivision c will be between thirty percent and seventy percent of the measurement range of the instrument system.

(b) Except as provided in subparagraph c: A monitoring device to measure the temperature of the gas leaving the combustion zone of the incinerator, if compliance with paragraph 1 of subdivision c is achieved through the use of an oxidation control system or a reduction control system followed by a continually operated incineration device. The monitoring device must be certified by the manufacturer to be accurate to within ± 1 percent of the temperature being measured.

When performance tests are conducted under the provisions of subsection 7 of section 33-15-12-01 to demonstrate compliance with the standards under subdivision c, the temperature of the gas leaving the incinerator combustion zone shall be determined using the monitoring device. If the volumetric ratio of sulfur dioxide to sulfur dioxide plus total reduced sulfur (expressed as SO₂) in the gas leaving the incinerator is =0.98, then temperature monitoring may be used to demonstrate that sulfur dioxide emission monitoring is sufficient to determine total sulfur emissions. At all times during the operation of the facility, the owner or operator shall maintain the average temperature of the gas leaving the combustion zone of the incinerator at or above the appropriate level determined during the most recent performance test to ensure the sulfur compound oxidation criteria are met. Operation at lower average temperatures may be considered by the department to be unacceptable operation and maintenance of the affected facility. The owner or operator may request that the minimum incinerator temperature be reestablished by conducting new performance tests under subsection 7 of section 33-15-12-01.

- (c) Upon promulgation of a performance specification of continuous monitoring systems for total reduced sulfur compounds at sulfur recovery plants, the owner or operator may, as an alternative to subparagraph b of this paragraph, install, calibrate, maintain, and operate a continuous emission monitoring system for total reduced sulfur compounds as required in paragraph 4 of this subdivision in addition to a sulfur dioxide emission monitoring system. The sum of the equivalent sulfur mass emission rates from the two monitoring systems must be used to compute the total sulfur emission rate (E).
- (3) Where compliance is achieved through the use of a reduction control system not followed by a continually operated incineration device, the owner or operator shall install, calibrate, maintain, and operate a continuous monitoring system to measure the emission rate of reduced sulfur compounds as sulfur dioxide equivalent in the gases discharged to the atmosphere. The sulfur dioxide equivalent compound emission rate shall be expressed in terms of equivalent sulfur mass flow rates (kg/hr). The span of this monitoring system must be set so that the

equivalent emission limit of paragraph 2 of subdivision c will be between thirty and seventy percent of the measurement range of the system. This requirement becomes effective upon promulgation of a performance specification for continuous monitoring systems for total reduced sulfur compounds at sulfur recovery plants.

(4) For those sources required to comply with paragraph 2 or 3 of this subdivision, the average sulfur emission reduction efficiency achieved (R) must be calculated for each twenty-four-hour clock interval. The twenty-four-hour interval may begin and end at any selected clock time, but must be consistent. The twenty-four-hour average reduction efficiency (R) must be computed based on the twenty-four-hour average sulfur production rate (S) and sulfur emission rate (E), using the equation in subparagraph a of paragraph 2 of subdivision d.

(a) Data obtained from the sulfur production rate monitoring device specified in paragraph 1 of this subdivision shall be used to determine S.

(b) Data obtained from the sulfur emission rate monitoring systems specified in paragraph 2 or 3 of this subdivision must be used to calculate a twenty-four-hour average for the sulfur emission rate (E). The monitoring system must provide at least one data point in each successive fifteen-minute interval. At least two data points must be used to calculate each one-hour average. A minimum of eighteen 1-hour averages must be used to compute each twenty-four-hour average.

(5) In lieu of complying with paragraph 2 or 3 of this subdivision, those sources with a design capacity of less than one hundred fifty LT/D of hydrogen sulfide expressed as sulfur may calculate the sulfur emission reduction efficiency achieved for each twenty-four-hour period by:

$$R = \frac{0.0236 S}{X} (100 \text{ percent})$$

where:

R = the sulfur dioxide removal efficiency achieved during the twenty-four-hour period, percent;

S = the sulfur production rate during the

twenty-four-hour period, kg/hr;

X = the sulfur feed rate in the acid gas,
LT/D; and 0.0236 = conversion factor,
LT/D per kg/hr.

(6) The monitoring devices required in subparagraph a of paragraph 2, subparagraph c of paragraph 2, and paragraph 3 of subdivision g must be calibrated at least annually according to the manufacturer's specifications, as required by subdivision b of subsection 11 of section 33-15-12-01.

(7) The continuous emission monitoring systems required in subparagraph a of paragraph 2, subparagraph c of paragraph 2, and paragraph 3 of subdivision g shall be subject to the emission monitoring requirements of subsection 11 of section 33-15-12-01. For conducting the continuous emission monitoring system performance evaluation required by subdivision c of subsection 11 of section 33-15-12-01, performance specification 2 shall apply, and method 6 must be used for systems required by paragraph 2 of subdivision g.

h. Recordkeeping and reporting requirements.

(1) Records of the calculations and measurements required in paragraphs 1 and 2 of subdivision c and paragraphs 1 through 7 of subdivision g must be retained for at least two years following the date of the measurements by owners or operators subject to this subsection. This requirement is included under subdivision d of subsection 6 of section 33-15-12-01.

(2) Each owner or operator shall submit a written report of excess emissions to the department semiannually. For the purpose of these reports, excess emissions are defined as:

(a) Any twenty-four-hour period (at consistent intervals) during which the average sulfur emission reduction efficiency (R) is less than the minimum required efficiency (Z).

(b) For any affected facility electing to comply with the provisions of subparagraph b of paragraph 2 of subdivision g, any twenty-four-hour period during which the average temperature of the gases leaving the combustion zone of an incinerator is less than the appropriate operating temperature as determined during the most recent performance test in accordance with the provisions of subparagraph b

of paragraph 2 of subdivision g. Each twenty-four-hour period must consist of at least ninety-six temperature measurements equally spaced over the twenty-four hours.

(3) To certify that a facility is exempt from the control requirements of these standards, each owner or operator of a facility with a design capacity less than two LT/D of hydrogen sulfide in the acid gas (expressed as sulfur) shall keep, for the life of the facility, an analysis demonstrating that the facility's design capacity is less than two LT/D of hydrogen sulfide expressed as sulfur.

(4) Each owner or operator who elects to comply with paragraph 5 of subdivision g shall keep, for the life of the facility, a record demonstrating that the facility's design capacity is less than one hundred fifty LT/D of hydrogen sulfide expressed as sulfur.

i. Optional procedure for measuring hydrogen sulfide in acid gas - tutwiler procedure.

(1) When an instantaneous sample is desired and hydrogen sulfide concentration is ten grains per one thousand cubic foot or more, a one hundred milliliter tutwiler burette is used. For concentrations less than ten grains, a five hundred milliliter tutwiler burette and more dilute solutions are used. In principle, this method consists of titrating hydrogen sulfide in a gas sample directly with a standard solution of iodine.

(2) Apparatus. (See figure 1) A one hundred or five hundred milliliter capacity tutwiler burette, with two-way glass stopcock at bottom and three-way stopcock at top which connect either with inlet tubulature or glass-stoppered cylinder, ten milliliter capacity, graduated in 0.1 milliliter subdivision; rubber tubing connecting burette with leveling bottle.

(3) Reagents.

(a) Iodine stock solution, 0.1N. Weight 12.7 g iodine, and twenty to twenty-five g cp potassium iodide for each liter of solution. Dissolve potassium iodide in as little water as necessary; dissolve iodine in concentrated potassium iodide solution, make up to proper volume, and store in glass-stoppered brown glass bottle.

(b) Standard iodine solution, 1 ml = 0.001771 g I. Transfer 33.7 ml of above 0.1N stock solution into a two hundred fifty milliliter volumetric flask; add water to mark and mix well. Then, for one hundred milliliters sample of gas, one milliliter of standard iodine solution is equivalent to one hundred grains hydrogen sulfide per cubic feet of gas.

(c) Starch solution. Rub into a thin paste about one teaspoonful of wheat starch with a little water; pour into about a pint of boiling water; stir; let cool and decant off clear solution. Make fresh solution every few days.

(4) Procedure. Fill leveling bulb with starch solution. Raise (L), open cock (G), open (F) to (A), and close (F) when solution starts to run out of gas inlet. Close (G). Purge gas sampling line and connect with (A). Lower (L) and open (F) and (G). When liquid level is several milliliters past the one hundred milliliter mark, close (G) and (F) and disconnect sampling tube. Open (G) and bring starch solution to one hundred milliliter mark by raising (L); then close (G). Open (F) momentarily, to bring gas in burette to atmospheric pressure, and close (F). Open (G), bring liquid level down to ten milliliter mark by lowering (L). Close (G), clamp rubber tubing near (E) and disconnect it from burette. Rinse graduated cylinder with a standard iodine solution (0.00171 g I per ml); fill cylinder and record reading. Introduce successive small amounts of iodine through (F); shake well after each addition; continue until a faint permanent blue color is obtained. Record reading; subtract from previous reading, and call difference D.

(5) With every fresh stock of starch solution perform a blank test as follows: introduce fresh starch solution into burette up to one hundred milliliter mark. Close (F) and (G). Lower (L) and open (G). When liquid level reaches the ten milliliter mark, close (G). With air in burette, titrate as during a test and up to same end point. Call milliliters of iodine used C. Then:

$$\text{Grains H}_2\text{S per 100 cubic foot of gas} = 100 (D - C)$$

(6) Greater sensitivity can be attained if a five hundred milliliter capacity tutwiler burette is used with a more dilute (0.001N) iodine solution. Concentrations less than one grain per one hundred cubic foot can be determined in this way. Usually, the starch-iodine

end point is much less distinct, and a blank determination of end point, with hydrogen sulfide-free gas or air, is required.

22. Standards of performance for equipment leaks of volatile organic compounds from onshore natural gas processing plants.

a. Applicability and designation of affected facility.

(1) The provisions of this subsection apply to affected facilities in onshore natural gas processing plants.

(a) A compressor in volatile organic compounds service or in wet gas service is an affected facility.

(b) The group of all equipment except compressors (defined in subdivision b) within a process unit is an affected facility.

(2) Any affected facility under paragraph 1 of this subdivision that commences construction, reconstruction, or modification after January 20, 1984, is subject to the requirements of this subsection.

(3) Addition or replacement of equipment (defined in subdivision b) for the purpose of process improvement that is accomplished without a capital expenditure may not by itself be considered a modification under this subsection.

(4) Facilities covered by subsection 23 or 24 are excluded from this subsection.

(5) A compressor station, dehydration unit, sweetening unit, underground storage tank, field gas gathering system, or liquefied natural gas unit is covered by this subsection if it is located at an onshore natural gas processing plant. If the unit is not located at the plant site, then it is exempt from the provisions of this subsection.

b. Definitions. As used in this subsection, all terms not defined herein shall have the meaning given them in North Dakota Century Code chapter 23-25 and subsection 2 of section 33-15-12-01.

(1) "Equipment" means each pump, pressure relief device, open-ended valve or line, valve, compressor, and flange or other connector that is in volatile organic compounds service or in wet gas service and any device or system required by this subsection.

- (2) "Field gas" means feed stock gas, entering the natural gas processing plant.
- (3) "In light liquid service" means that the piece of equipment contains a liquid that meets the conditions specified in paragraph 5 of subdivision p of subsection 23 or subparagraph b of paragraph 7 of subdivision d of this subsection.
- (4) "In wet gas service" means that a piece of equipment contains or contacts the field gas before the extraction step in the process.
- (5) "Natural gas liquids" means the hydrocarbons, such as ethane, propane, butane, and pentane, that are extracted from field gas.
- (6) "Natural gas processing plant" (gas plant) means any processing site engaged in the extraction of natural gas liquids from field gas, fractionation of mixed natural gas liquids to natural gas products, or both.
- (7) "Nonfractionating plant" means any gas plant that does not fractionate mixed natural gas liquids into natural gas products.
- (8) "Onshore" means all facilities except those that are located in the territorial seas or on the outer continental shelf.
- (9) "Process unit" means equipment assembled for the extraction of natural gas liquids from field gas, the fractionation of the liquids into natural gas products, or other operations associated with the processing of natural gas products. A process unit can operate independently if supplied with sufficient feed or raw materials and sufficient storage facilities for the products.
- (10) "Reciprocating compressor" means a piece of equipment that increases the pressure of a process gas by positive displacement, employing linear movement of the drive shaft.

c. Standards.

- (1) Each owner or operator subject to the provisions of this subsection shall comply with the requirements of paragraphs 1, 2, and 4 of subdivision c of subsection 23 and subdivisions d through l of subsection 23, except as provided in subdivision d of this subsection, as soon as practicable, but no later than one hundred eighty days after initial startup.

- (2) An owner or operator may elect to comply with the requirements of subdivisions m and n of subsection 23.
- (3) An owner or operator may apply to the department for permission to use an alternative means of emission limitation that achieves a reduction in emissions of volatile organic compounds at least equivalent to that achieved by the controls required in this subsection. In doing so, the owner or operator shall comply with the requirements of subdivision e of this subsection.
- (4) Each owner or operator subject to the provisions of this subsection shall comply with the provisions of subdivision p of subsection 23 except as provided in paragraph 5 of subdivision d of this subsection.
- (5) Each owner or operator subject to the provisions of this subsection shall comply with the provisions of subdivisions q and r of subsection 23 except as provided in subdivisions d, f, and g of this subsection.
- (6) An owner or operator shall use the following provision instead of paragraph 4 of subdivision p of subsection 23: Each piece of equipment is presumed to be in volatile organic compounds service or in wet gas service unless an owner or operator demonstrates that the piece of equipment is not in volatile organic compounds service or in wet gas service. For a piece of equipment to be considered not in volatile organic compounds service, it must be determined that the percent volatile organic compounds content can be reasonably expected never to exceed ten percent by weight. For a piece of equipment to be considered in wet gas service, it must be determined that it contains or contacts the field gas before the extraction step in the process. For purposes of determining the percent volatile organic compounds content of the process fluid that is contained in or contacts a piece of equipment, procedures that conform to the methods described in A.S.T.M. methods E169, E168, or E260 must be used.

d. Exceptions.

- (1) Each owner or operator subject to the provisions of this subsection may comply with the following exceptions to the provisions of subsection 23.
- (2) Each pressure relief device in gas/vapor service may be monitored quarterly and within five days after

each pressure release to detect leaks by the methods specified in paragraph 2 of subdivision p of subsection 23 except as provided in paragraph 3 of subdivision c, subparagraph c of paragraph 2 of this subdivision, and paragraphs 1 through 3 of subdivision f of subsection 23.

(a) If an instrument reading of ten thousand parts per million or greater is measured, a leak is detected.

(b) When a leak is detected, it must be repaired as soon as practicable, but no later than fifteen calendar days after it is detected, except as provided in subdivision k of subsection 23. A first attempt at repair must be made no later than five calendar days after each leak is detected.

(c) Any pressure relief device that is located in a nonfractionating plant that is monitored only by nonplant personnel may be monitored after a pressure release the next time the monitoring personnel are onsite, instead of within five days as specified in paragraph 2 of this subdivision and paragraph 2 of subdivision f of subsection 23. No pressure relief device described in subparagraph c of paragraph 2 of this subdivision shall be allowed to operate for more than thirty days after a pressure release without monitoring.

(3) Sampling connection systems are exempt from the requirements of subdivision g of subsection 23.

(4) Pumps in light liquid service, valves in gas/vapor and light liquid service, and pressure relief devices in gas/vapor service that are located at a nonfractionating plant that does not have the design capacity to process two hundred eighty-three thousand standard cubic meters per day (scmd) [10 million standard cubic feet per day (scfd)] or more of field gas are exempt from the routine monitoring requirements of paragraph 1 of subdivision d of subsection 23, paragraph 1 of subdivision i of subsection 23, and paragraph 2 of this subdivision.

(5) Reciprocating compressors in wet gas service are exempt from the compressor control requirements of subdivision e of subsection 23.

(6) In addition to the requirements for flares of subparagraph c of paragraph 4 of subdivision 1 of subsection 23, the following are allowed:

(a) Steam-assisted and nonassisted flares designed for and operated with an exit velocity, as determined by the method specified in subparagraph c of paragraph 7 of subdivision p of subsection 23, equal to or greater than 18.3 meters per second [60 ft/sec] but less than one hundred twenty-two meters per second [400 ft/sec] if the net heating value of the gas being combusted is greater than 37.3 MJ/scm [1000 Btu/scf].

(b) Steam-assisted and nonassisted flares designed for and operated with an exit velocity, as determined by the methods specified in subparagraph c of paragraph 7 of subdivision p of subsection 23, less than one hundred twenty-two meter per seconds [400 ft/sec] and less than the velocity, V_{max} , as determined by the following equation:

$$\text{Log}_{10}(V_{max}) = (H_t + 28.8)/31.7.$$

V_{max} = Maximum permitted velocity, m/sec.

28.8 = Constant.

31.7 = Constant.

H_t = The net heating value as determined in subparagraph b of paragraph 7 of subdivision p of subsection 23.

(7) An owner or operator may use the following provisions instead of paragraph 5 of subdivision p of subsection 23:

(a) Equipment is in heavy liquid service if the weight percent evaporated is ten percent or less at one hundred fifty degrees Celsius [302 degrees Fahrenheit] as determined by A.S.T.M. method D86.

(b) Equipment is in light liquid service if the weight percent evaporated is greater than ten percent at one hundred fifty degrees Celsius [302 degrees Fahrenheit] as determined by A.S.T.M. method D86.

e. Alternative means of emission limitation.

- (1) If, in the department's judgment, an alternative means of emission limitation will achieve a reduction in volatile organic compounds emissions at least equivalent to the reduction in volatile organic compounds emissions achieved under any design, equipment, work practice, or operational standard, the department will publish a notice permitting the use of that alternative means for the purpose of compliance with that standard. The notice may condition permission on requirements related to the operation and maintenance of the alternative means.
- (2) Any notice under paragraph 1 of this subdivision shall be published only after notice and an opportunity for a public hearing.
- (3) The department will consider applications under this subdivision from either owners or operators of affected facilities, or manufacturers of control equipment.
- (4) The department will treat applications under this subdivision according to the following criteria, except in cases where it concludes that other criteria are appropriate:
 - (a) The applicant must collect, verify, and submit test data, covering a period of at least twelve months, necessary to support the finding in paragraph 1 of this subdivision.
 - (b) If the applicant is an owner or operator of an affected facility, the applicant must commit in writing to operate and maintain the alternative means so as to achieve a reduction in volatile organic compounds emissions at least equivalent to the reduction in volatile organic compounds emissions achieved under the design, equipment, work practice, or operational standard.

f. Recordkeeping requirements.

- (1) Each owner or operator subject to the provisions of this subsection shall comply with the requirements of paragraphs 2 and 3 of this subdivision in addition to the requirements of subdivision q of subsection 23.
- (2) The following recordkeeping requirements shall apply to pressure relief devices subject to the requirements of paragraph 2 of subdivision d of this subsection.

- (a) When each leak is detected as specified in subparagraph a of paragraph 2 of subdivision d of this subsection, a weatherproof and readily visible identification, marked with the equipment identification number, must be attached to the leaking equipment. The identification on the pressure relief device may be removed after it has been repaired.
- (b) When each leak is detected as specified in subparagraph a of paragraph 2 of subdivision d of this subsection, the following information must be recorded in a log and must be kept for two years in a readily accessible location:
- [1] The instrument and operator identification numbers and the equipment identification number.
 - [2] The date the leak was detected and the dates of each attempt to repair the leak.
 - [3] Repair methods applied in each attempt to repair the leak.
 - [4] "Above ten thousand parts per million" if the maximum instrument reading measured by the methods specified in paragraph 1 after each repair attempt is ten thousand parts per million or greater.
 - [5] "Repair delayed" and the reason for the delay if a leak is not repaired within fifteen calendar days after discovery of the leak.
 - [6] The signature of the owner or operator (or designate) whose decision it was that repair could not be effected without a process shutdown.
 - [7] The expected date of successful repair of the leak if a leak is not repaired within fifteen days.
 - [8] Dates of process unit shutdowns that occur while the equipment is unrepaired.
 - [9] The date of successful repair of the leak.
 - [10] A list of identification numbers for equipment that are designated for no detectable emissions under the provisions

of paragraph 1 of subdivision f of subsection 23. The designation of equipment subject to the provisions of paragraph 1 of subdivision f of subsection 23 must be signed by the owner or operator.

(c) An owner or operator shall comply with the following requirement in addition to the requirement of paragraph 10 of subdivision q of subsection 23: Information and data used to demonstrate that a reciprocating compressor is in wet gas service to apply for the exemption in paragraph 5 of subdivision d of this subsection must be recorded in a log that is kept in a readily accessible location.

g. Reporting requirements.

(1) Each owner or operator subject to the provisions of this subsection shall comply with the requirements of paragraphs 2 and 3 of this subdivision in addition to the requirements of subdivision r of subsection 23.

(2) An owner or operator shall include the following information in the initial semiannual report in addition to the information required in subparagraphs a through d of paragraph 2 of subdivision r of subsection 23: number of pressure relief devices subject to the requirements of paragraph 2 of subdivision d of this subsection except for those pressure relief devices designated for no detectable emissions under the provisions of paragraph 1 of subdivision f of subsection 23 and those pressure relief devices complying with paragraph 3 of subdivision f of subsection 23.

(3) An owner or operator shall include the following information in all semiannual reports in addition to the information required in items 1 through 6 of subparagraph b of paragraph 3 of subdivision r of subsection 23:

(a) Number of pressure relief devices for which leaks were detected as required in subparagraph a of paragraph 2 of subdivision d of this subsection; and

(b) Number of pressure relief devices for which leaks were not repaired as required in subparagraph b of paragraph 2 of subdivision d of this subsection.

23. Standards of performance for equipment leaks of volatile organic compounds in the synthetic organic chemicals manufacturing industry.

a. Applicability and designation of affected facility.

(1) The provisions of this subsection apply to affected facilities in the synthetic organic chemicals manufacturing industry.

(a) The group of all equipment (defined in subdivision b) within a process unit is an affected facility.

(2) Any affected facility under paragraph 1 of this subdivision that commences construction or modification after January 5, 1981, shall be subject to the requirements of this subsection.

(3) Addition or replacement of equipment for the purpose of process improvement which is accomplished without a capital expenditure shall not by itself be considered a modification under this subsection.

(4) If an owner or operator applies for one or more of the exemptions in this paragraph, then the owner or operator shall maintain records as required in paragraph 9 of subdivision q.

(a) Any affected facility that has the design capacity to produce less than one thousand milligrams per year is exempt from subdivision c.

(b) If an affected facility produces heavy liquid chemicals only from heavy liquid feed or raw materials, then it is exempt from subdivision c.

(c) Any affected facility that produces beverage alcohol is exempt from subdivision c.

(d) Any affected facility that has no equipment in volatile organic compounds service is exempt from subdivision c.

b. Definitions. As used in this subsection, all terms not defined herein shall have the meaning given them in North Dakota Century Code chapter 23-25 and subsection 2 of section 33-15-12-01.

(1) "Capital expenditure" means, in addition to the definition in subsection 2 of section 33-15-12-01, an

expenditure for a physical or operational change to an existing facility that:

(a) Exceeds P, the product of the facility's replacement cost, R, and an adjusted annual asset guideline repair allowance, A, as reflected by the following equation: $P = R \times A$, where

[1] The adjusted annual asset guideline repair allowance, A, is the product of the percent of the replacement cost, Y, and the applicable basic annual asset guideline repair allowance, B, as reflected by the following equation: $A = Y \times (B / 100)$;

[2] The percent Y is determined from the following equation: $Y = 1.0 - 0.575 \log X$, where X is 1982 minus the year of construction; and

[3] The applicable basic annual asset guideline repair allowance, B, is selected from the following table consistent with the applicable subsection:

TABLE FOR DETERMINING APPLICABLE FOR B

<u>Subsection applicable to facility</u>	<u>Value of B to be used in equation</u>
<u>22</u>	<u>4.5</u>
<u>23</u>	<u>12.5</u>
<u>24</u>	<u>7.00</u>

(2) "Closed vent system" means a system that is not open to the atmosphere and that is composed of piping, connections, and, if necessary, flow inducing devices that transport gas or vapor from a piece or pieces of equipment to a control device.

(3) "Connector" means flanged, screwed welded, or other joined fittings used to connect two pipelines or a pipeline and a piece of process equipment.

(4) "Control device" means an enclosed combustion device, vapor recovery system, or flare.

- (5) "Distance piece" means an open or enclosed casing through which the piston rod travels, separating the compressor cylinder from the crankcase.
- (6) "Double block and bleed system" means two block valves connected in series with a bleed valve or line that can vent the line between the two block valves.
- (7) "Equipment" means each pump, compressor, pressure relief device, sampling connection system, open-ended valve or line, valve, and flange or other connector in volatile organic compounds service and any devices or systems required by this subsection.
- (8) "First attempt at repair" means to take rapid action for the purpose of stopping or reducing leakage of organic material to atmosphere using best practices.
- (9) "In gas/vapor service" means that the piece of equipment contains process fluid that is in the gaseous state at operating conditions.
- (10) "In heavy liquid service" means that the piece of equipment is not in gas/vapor service or in light liquid service.
- (11) "In light liquid service" means that the piece of equipment contains a liquid that meets the conditions specified in paragraph 5 of subdivision p.
- (12) "In-site sampling systems" means nonextractive samplers or in-line samplers.
- (13) "In vacuum service" means that equipment is operating at an internal pressure which is at least five kilopascals (kPa) below ambient pressure.
- (14) "In volatile organic compounds service" means that the piece of equipment contains or contacts a process fluid that is at least ten percent volatile organic compounds by weight. (The provisions of paragraph 4 of subdivision p specify how to determine that a piece of equipment is not in volatile organic compounds service).
- (15) "Liquids dripping" means any visible leakage from the seal, including spraying, misting, clouding, and ice formation.
- (16) "Open-ended valve or line" means any valve, except safety relief valves, having one side of the valve seat in contact with process fluid and one side open

to the atmosphere, either directly or through open piping.

- (17) "Pressure release" means the emission of materials resulting from system pressure being greater than set pressure of the pressure of the pressure relief device.
- (18) "Process improvement" means routine changes made for safety and occupational health requirements, for energy savings, for better utility, for ease of maintenance and operation, for correction of design deficiencies, for bottleneck removal, for changing product requirements, or for environmental control.
- (19) "Process unit" means components assembled to produce, as intermediate or final products, one or more of the chemicals referenced in subdivision t of this subsection. A process unit can operate independently if supplied with sufficient feed or raw materials and sufficient storage facilities for the product.
- (20) "Process unit shutdown" means a work practice or operational procedure that stops production from a process unit or part of a process unit. An unscheduled work practice or operational procedure that stops production from a process unit or part of a process unit for less than twenty-four hours is not a process unit shutdown. The use of spare equipment and technically feasible bypassing of equipment without stopping production are not process unit shutdowns.
- (21) "Quarter" means a three-month period; the first quarter concludes on the last day of the last full month during the one hundred eighty days following initial startup.
- (22) "Repaired" means that equipment is adjusted, or otherwise altered, in order to eliminate a leak as indicated by one of the following: an instrument reading of ten thousand parts per million or greater, indication of liquids dripping, or indication by a sensor that a seal or barrier fluid system has failed.
- (23) "Replacement cost" means the capital needed to purchase all the depreciable components in a facility.
- (24) "Sensor" means a device that measures a physical quantity or the change in a physical quantity such as

temperature, pressure, flow rate, pH, or liquid level.

- (25) "Synthetic organic chemicals manufacturing industry" means the industry that produces, as intermediates or final products, one or more of the chemicals referenced in subdivision t.
- (26) "Volatile organic compounds" or VOC means, for the purposes of this subsection, any reactive organic compounds as defined in subsection 2 of section 33-15-12-01.

c. Standards: general.

- (1) Each owner or operator subject to the provisions of this subsection shall demonstrate compliance with the requirements of subdivision c to subdivision l for all equipment within one hundred eighty days of initial startup.
- (2) Compliance with subdivision c to subdivision l will be determined by review of records and reports, review of performance test results, and inspection using the methods and procedures specified in subdivision p.
- (3) An owner or operator may request a determination of equivalence of a means of emission limitation to the requirements of subdivision d, e, g, h, i, j, or l as provided in subdivision o. If the department and administrator make a determination that a means of emission limitation is at least equivalent to the requirements of subdivision d, e, g, h, i, j, or l an owner or operator shall comply with the requirements of that determination.
- (4) Equipment that is in vacuum service is excluded from the requirements of subdivision d to subdivision l if it is identified as required in subparagraph g of paragraph 5 of subdivision q.

d. Standards: pumps in light liquid service.

- (1) Each pump in light liquid service shall be monitored monthly to detect leaks by the methods specified in paragraph 2 of subdivision p, except as provided in paragraph 3 of subdivision c and paragraphs 4, 5, and 6 of this subdivision. Each pump in light liquid service must be checked by visual inspection each calendar week for indications of liquids dripping from the pump seal.

- (2) If an instrument reading of ten thousand parts per million or greater is measured, a leak is detected. If there are indications of liquids dripping from the pump seal, a leak is detected.
- (3) When a leak is detected, it must be repaired as soon as practicable, but not later than fifteen calendar days after it is detected, except as provided in subdivision k. A first attempt at repair must be made no later than five calendar days after each leak is detected.
- (4) Each pump equipped with a dual mechanical seal system that includes a barrier fluid system is exempt from the requirements of paragraph 1, provided the following requirements are met:
- (a) Each dual mechanical seal system is:
- [1] Operated with the barrier fluid at a pressure that is at all times greater than the pump stuffing box pressure; or
- [2] Equipment with a barrier fluid degassing reservoir that is connected by a closed vent system to a control device that complies with the requirements of subdivision l; or
- [3] Equipped with a system that purges the barrier fluid into a process stream with zero volatile organic compounds emissions to the atmosphere.
- (b) The barrier fluid system is in heavy liquid service or is not in volatile organic compounds service.
- (c) Each barrier fluid system is equipped with a sensor that will detect failure of the seal system, the barrier fluid system, or both.
- (d) Each pump is checked by visual inspection, each calendar week, for indications of liquids dripping from the pump seals.
- (e) Each sensor as described in subparagraph c of paragraph 4 is checked daily or is equipped with an audible alarm, and the owner or operator determines, based on design considerations and operating experience, a criterion that indicates failure of the seal system, the barrier fluid system, or both.

(f) If there are indications of liquids dripping from the pump seal or the sensor indicates failure of the seal system, the barrier fluid system, or both, based on the criterion determined in item 1 of subparagraph e of paragraph 4, a leak is detected.

[1] When a leak is detected, it must be repaired as soon as practicable, but not later than fifteen calendar days after it is detected, except as provided in subdivision k.

[2] A first attempt at repair shall be made no later than five calendar days after each leak is detected.

(5) Any pump that is designated, as described in subparagraphs a and b of paragraph 5 of subdivision q, for no detectable emission, as indicated by an instrument reading of less than five hundred parts per million above background, is exempt from the requirements of paragraphs 1, 3, and 4 if the pump:

(a) Has no externally actuated shaft penetrating the pump housing;

(b) Is demonstrated to be operating with no detectable emissions as indicated by an instrument reading of less than five hundred parts per million above background as measured by the methods specified in paragraph 3 of subdivision p; and

(c) Is tested for compliance with subparagraph b of paragraph 5 initially upon designation, annually, and at other times requested by the department.

(6) If any pump is equipped with a closed vent system capable of capturing and transporting any leakage from the seal or seals to a control device that complies with the requirements of subdivision l, it is exempt from paragraphs 1 through 5.

e. Compressors.

(1) Each compressor must be equipped with a seal system that includes a barrier fluid system and that prevents leakage of volatile organic compounds to the atmosphere, except as provided in paragraph 3 of

subdivision c and paragraphs 8 and 9 of this subdivision.

- (2) Each compressor seal system as required in paragraph 1 must be:
 - (a) Operated with the barrier fluid at a pressure that is greater than the compressor stuffing box pressure; or
 - (b) Equipped with a barrier fluid system that is connected by a closed vent system to a control device that complies with the requirements of subdivision 1.
 - (c) Equipped with a system that purges the barrier fluid into a process stream with zero volatile organic compounds emissions to the atmosphere.
- (3) The barrier fluid system shall be in heavy liquid service or shall not be in volatile organic compounds service.
- (4) Each barrier fluid system as described in paragraph 1 must be equipped with a sensor that will detect failure of the seal system, barrier fluid system, or both.
- (5) Each sensor as required in paragraph 4 must be checked daily or must be equipped with an audible alarm. The owner or operator shall determine, based on design considerations and operating experience, a criterion that indicates failure of the seal system, the barrier fluid system, or both.
- (6) If the sensor indicates failure of the seal system, the barrier system, or both, based on the criterion determined under subparagraph a of paragraph 5, a leak is detected.
- (7) When a leak is detected, it must be repaired as soon as practicable, but not later than fifteen calendar days after it is detected, except as provided in subdivision k. A first attempt at repair must be made no later than five calendar days after each leak is detected.
- (8) A compressor is exempt from the requirements of paragraphs 1 and 2, if it is equipped with closed vent system capable of capturing and transporting any leakage from the seal to a control device that complies with the requirements of subdivision 1, except as provided in paragraph 9.

(9) Any compressor that is designated, as described in subparagraphs a and b of paragraph 5 of subdivision q, for no detectable emissions as indicated by an instrument reading of less than five hundred parts per million above background is exempt from the requirements of paragraphs 1 through 8 if the compressor:

(a) Is demonstrated to be operating with no detectable emissions, as indicated by an instrument reading of less than five hundred parts per million above background, as measured by the methods specified in paragraph 3 of subdivision p; and

(b) Is tested for compliance with subparagraph a of paragraph 9 initially upon designation, annually, and at other times requested by the department.

(10) Any existing reciprocating compressor in a process unit which becomes an affected facility under provisions of subsection 12 or 13 of section 33-15-12-01 is exempt from paragraphs 1, 2, 3, 4, 5, and 8, provided the owner or operator demonstrates that recasting the distance piece or replacing the compressor are the only options available to bring the compressor into compliance with the provisions of paragraphs 1, 2, 3, 4, 5, and 8.

f. Pressure relief devices in gas/vapor service.

(1) Except during pressure releases, each pressure relief device in gas/vapor service must be operated with no detectable emissions, as indicated by an instrument reading of less than five hundred parts per million above background, as determined by the methods specified in paragraph 3 of subdivision p.

(2) After each pressure release, the pressure relief device must be returned to a condition of no detectable emissions, as indicated by an instrument reading of less than five hundred parts per million above background, as soon as practicable, but no later than five calendar days after the pressure release, except as provided in subdivision k. No later than five calendar days after the pressure release, the pressure relief device must be monitored to confirm the conditions of no detectable emissions, as indicated by an instrument reading of less than five hundred parts per million above background, by the methods specified in paragraph 3 of subdivision p.

(3) Any pressure relief device that is equipped with a closed vent system capable of capturing and transporting leakage through the pressure relief device to a control device as described in subdivision 1 is exempted from the requirements of paragraphs 1 and 2.

g. Standards: sampling connection systems.

(1) Each sampling connection system must be equipped with a closed purge system or closed vent system, except as provided in paragraph 3 of subdivision c.

(2) Each closed purge system or closed vent system as required in paragraph 1 shall:

(a) Return the purged process fluid directly to the process line with zero volatile organic compounds emissions to the atmosphere;

(b) Collect and recycle the purged process fluid with zero volatile organic compounds emissions to the atmosphere; or

(c) Be designed and operated to capture and transport all the purged process fluid to a control device that complies with the requirements of subdivision 1.

(3) In-site sampling systems are exempt from paragraphs 1 and 2.

h. Standards: open-ended valves or lines.

(1) Each open-ended valve or line must be equipped with a cap, blind flange, plug, or a second valve, except as provided in paragraph 3 of subdivision c. The cap, blind flange, plug, or second valve shall seal the open end at all times except during operations requiring process fluid flow through the open-ended valve or line.

(2) Each open-ended valve or line equipped with a second valve must be operated in a manner such that the valve on the process fluid end is closed before the second valve is closed.

(3) When a double block and bleed system is being used, the bleed valve or line may remain open during operations that require venting the line between the block valves but shall comply with paragraph 1 at all other times.

i. Standards: valves in gas/vapor service in light liquid service.

- (1) Each valve must be monitored monthly to detect leaks by the methods specified in paragraph 2 of subdivision p and shall comply with paragraphs 2 through 5, except as provided in paragraphs 6, 7, and 8, subdivisions m, n, and paragraph 3 of subdivision c.
- (2) If an instrument reading of ten thousand parts per million or greater is measured, a leak is detected.
- (3) Any valve for which a leak is not detected for two successive months may be monitored the first month of every quarter, beginning with the next quarter, until a leak is detected.
 - (a) If a leak is detected, the valve must be monitored monthly until a leak is not detected for two successive months.
- (4) When a leak is detected, it must be repaired as soon as practicable, but no later than fifteen calendar days after the leak is detected, except as provided in subdivision k. A first attempt at repair must be made no later than five calendar days after each leak is detected.
- (5) First attempts at repair include, but are not limited to, the following best practices where practicable:
 - (a) Tightening of bonnet bolts.
 - (b) Replacement of bonnet bolts.
 - (c) Tightening of packing gland nuts.
 - (d) Injection of lubricant into lubricated packing.
- (6) Any valve that is designated, as described in subparagraph b of paragraph 5 of subdivision q, for no detectable emissions, as indicated by an instrument reading of less than five hundred parts per million above background, is exempt from the requirements of paragraph 1 if the valve:
 - (a) Has no external actuating mechanism in contact with the process fluid;
 - (b) Is operated with emissions less than five hundred parts per million above background as

determined by the method specified in paragraph 3 of subdivision p; and

(c) Is tested for compliance with subparagraph b of paragraph 6 initially upon designation, annually, and at other times requested by the department.

(7) Any valve that is designated, as described in subparagraph a of paragraph 6 of subdivision q, as an unsafe-to-monitor valve is exempt from the requirements of paragraph 1 if:

(a) The owner or operator of the valve demonstrated that the valve is unsafe to monitor because monitoring personnel would be exposed to an immediate danger as a consequence of complying with paragraph 1; and

(b) The owner or operator of the valve adheres to a written plan that requires monitoring of the valve as frequently as practicable during safe-to-monitor times.

(8) Any valve that is designated, as described in subparagraph b of paragraph 6 or subdivision q, as a difficult-to-monitor valve is exempt from the requirements of paragraph 1 if:

(a) The owner or operator of the valve demonstrates that the valve cannot be monitored without elevating the monitoring personnel more than two meters [6.56 feet] above a support surface;

(b) The process unit within which the valve is located either becomes an affected facility through subsection 12 or 13 of section 33-15-12-01 or the owner or operator designates less than three percent of the total number of valves as difficult to monitor; and

(c) The owner or operator of the valve follows a written plan that requires monitoring of the valve at least once per calendar year.

j. Standards: pumps and valves in heavy liquid service, pressure relief devices in light liquid or heavy liquid service, and flanges and other connectors.

(1) Pumps and valves in heavy liquid service, pressure relief devices in light liquid or heavy liquid service, and flanges and other connectors shall be monitored within five days by the method specified in

paragraph 2 of subdivision p if evidence of a potential leak is found by visual, audible, olfactory, or any other detection method.

- (2) If an instrument reading of ten thousand parts per million or greater is measured, a leak is detected.
- (3) When a leak is detected, it must be repaired as soon as practicable, but not later than fifteen calendar days after it is detected, except as provided in subdivision k.
- (4) The first attempt at repair must be made no later than five calendar days after each leak is detected.
- (5) First attempts at repair include, but are not limited to, the best practices described under paragraph 5 of subdivision i.

k. Standards: delay of repair.

- (1) Delay of repair of equipment for which leaks have been detected will be allowed if the repair is technically infeasible without a process unit shutdown. Repair of this equipment shall occur before the end of the next process unit shutdown.
- (2) Delay of repair of equipment will be allowed for equipment which is isolated from the process and which does not remain in volatile organic compounds service.
- (3) Delay of repair for valves will be allowed if:
 - (a) The owner or operator demonstrates that emissions of purged material resulting from immediate repair are greater than the fugitive emissions likely to result from delay of repair; and
 - (b) When repair procedures are effected, the purged material is collected and destroyed or recovered in a control device complying with subdivision l.
- (4) Delay of repair for pumps will be allowed if:
 - (a) Repair requires the use of a dual mechanical seal system that includes a barrier fluid system; and

(b) Repair is completed as soon as practicable, but not later than six months after the leak was detected.

(5) Delay of repair beyond a process unit shutdown will be allowed for a valve, if valve assembly replacement is necessary during the process unit shutdown, valve assembly supplies have been depleted, and valve assembly supplies had been sufficiently stocked before the supplies were depleted. Delay of repair beyond the next process unit shutdown will not be allowed unless the next process unit shutdown occurs sooner than six months after the first process unit shutdown.

1. Standards: closed vent systems and control devices.

(1) Owners or operators of closed vent systems and control devices used to comply with provisions of this subsection shall comply with the provisions of this subdivision.

(2) Vapor recovery system (for example, condensers and absorbers) shall be designed and operated to recover the volatile organic compounds emissions vented to them with an efficiency of ninety-five percent or greater.

(3) Enclosed combustion devices shall be designed and operated to reduce the volatile organic compounds emissions vented to them with an efficiency of ninety-five percent or greater, or to provide a minimum residence time of 0.75 seconds at a minimum temperature of eight hundred sixteen degrees Celsius [1501 degrees Fahrenheit].

(4) Flares must be designed for and operated with no visible emissions as determined by the methods specified in paragraph 7 of subdivision p, except for periods not to exceed a total of five minutes during any two consecutive hours.

(a) Flares must be operated with a flame present at all times, as determined by the methods specified in paragraph 7 of subdivision p.

(b) Flares must be used only with the net heating value of the gas being combusted being 11.2 MJ/scm [300 Btu/scf] or greater if the flare is steam assisted or air assisted; or with the net heating value of the gas being combusted being 7.45 MJ/scm or greater if the flare is nonassisted. The net heating value of the gas

being combusted must be determined by the methods specified in paragraph 7 of subdivision p.

- (c) Steam-assisted and nonassisted flares must be designed for and operated with an exit velocity, as determined by the methods specified in subparagraph c of paragraph 7 of subdivision p, less than eighteen meters per seconds [60 ft/sec].
- (d) Flares used to comply with this subsection must be steam assisted, air assisted, or nonassisted.
- (e) Air-assisted flares must be designed and operated with an exit velocity less than the velocity, V_{max} , as determined by the methods specified in subparagraph d of paragraph 7 of subdivision p.
- (5) Owners or operators of control devices used to comply with the provisions of this subsection shall monitor these control devices to ensure that they are operated and maintained in conformance with their designs.
- (6) Closed vent systems must be designed and operated with no detectable emissions, as indicated by an instrument reading of less than five hundred parts per million above background and visual inspections, as determined by the methods specified in paragraph 3 of subdivision p. Closed vent systems must be monitored to determine compliance with this subdivision initially in accordance with subsection 7 of section 33-15-12-01, annually, and at other times requested by the department.
- (7) Closed vent systems and control devices used to comply with provisions of this subsection must be operated at all times when emissions may be vented to them.
- m. Alternative standards for valves - Allowable percentage of valves leaking.

 - (1) An owner or operator may elect to comply with an allowable percentage of valves leaking of equal to or less than two percent.
 - (2) The following requirements must be met if an owner or operator wishes to comply with an allowable percentage of valves leaking:

(a) An owner or operator must notify the department that the owner or operator has elected to comply with the allowable percentage of valves leaking before implementing this alternative standard, as specified in paragraph 2 of subdivision r.

(b) A performance test as specified in paragraph 3 of this subdivision must be conducted initially upon designation, annually, and at other times requested by the department.

(c) If a valve leak is detected, it must be repaired in accordance with paragraphs 4 and 5 of subdivision i.

(3) Performance tests must be conducted in the following manner:

(a) All valves in gas/vapor and light liquid service within the affected facility must be monitored within one week by the methods specified in paragraph 2 of subdivision p.

(b) If an instrument reading of ten thousand parts per million or greater is measured, a leak is detected.

(c) The leak percentage must be determined by dividing the number of valves for which leaks are detected by the number of valves in gas/vapor and light liquid service within the affected facility.

(4) Owners and operators who elect to comply with this alternative standard may not have an affected facility with a leak percentage greater than two percent.

n. Alternative standards for valves - Skip period leak detection and repair.

(1) An owner or operator may elect to comply with one of the alternative work practices specified in subparagraphs a and b of paragraph 2 of this subdivision. An owner or operator must notify the department before implementing one of the alternative work practices, as specified in paragraph 2 of subdivision r.

(2) An owner or operator shall comply initially with the requirements for valves in gas/vapor service and valves in light liquid service, as described in subdivision i.

- (a) After two consecutive quarterly leak detection periods with the percent of valves leaking equal to or less than two, an owner or operator may begin to skip one of the quarterly leak detection periods for the valves in gas/vapor and in light liquid service.
- (b) After five consecutive quarterly leak detection periods with the percent of valves leaking equal to or less than two, an owner or operator may begin to skip three of the quarterly leak detection periods for the valves in gas/vapor and in light liquid service.
- (c) If the percent of valves leaking is greater than two, the owner or operator shall comply with the requirements as described in subdivision i but can again elect to use this subdivision.
- (d) The percent of valves leaking must be determined by dividing the sum of valves found leaking during current monitoring and valves for which repair has been delayed by the total number of valves subject to the requirements of this subdivision.
- (e) An owner or operator must keep a record of the percent of valves found leaking during each leak detection period.

o. Equivalence of means of emission limitation.

- (1) Each owner or operator subject to the provisions of this subsection may apply to the department and administrator for determination of equivalence for any means of emission limitation that achieves a reduction in emissions of volatile organic compounds at least equivalent to the reduction in emissions of volatile organic compounds achieved by the controls required in this subsection.
- (2) Determination of equivalence to the equipment, design, and operational requirements of this subsection will be evaluated by the following guidelines:
 - (a) Each owner or operator applying for an equivalence determination shall be responsible for collecting and verifying test data to demonstrate equivalence of means of emission limitation.

- (b) The department will compare test data for the means of emission limitation to test data for the equipment, design, and operational requirements.
 - (c) The department may condition the approval of equivalence on requirements that may be necessary to assure operation and maintenance to achieve the same emission reduction as the equipment, design, and operational requirements.
- (3) Determination of equivalence to the required work practices in this subsection will be evaluated by the following guidelines:
- (a) Each owner or operator applying for a determination of equivalence shall be responsible for collecting and verifying test data to demonstrate equivalence of an equivalent means of emission limitation.
 - (b) For each affected facility for which a determination of equivalence is requested, the emission reduction achieved by the required work practice must be demonstrated.
 - (c) For each affected facility, for which a determination of equivalence is requested, the emission reduction achieved by the equivalent means of emission limitation must be demonstrated.
 - (d) Each owner or operator applying for a determination of equivalence shall commit in writing to work practices that provide for emission reductions equal to or greater than the emission reductions achieved by the required work practice.
 - (e) The department will compare the demonstrated emission reduction for the equivalent means of emission limitation to the demonstrated emission reduction for the required work practices and will consider the commitment in subparagraph d of paragraph 3.
 - (f) The department may condition the approval of equivalence on requirements that may be necessary to assure operation and maintenance to achieve the same emission reduction as the required work practice.

- (4) An owner or operator may offer a unique approach to demonstrate the equivalence of any equivalent means of emission limitation.
- (5) After a request for determination of equivalence is received, the department will publish notices and provide the opportunity for public hearing if the department judges that the request may be approved.
- (a) After notice and opportunity for public hearing, the department will determine the equivalence of a means of emission limitation and will publish the determination.
- (b) Any equivalent means of emission limitation approved under this subdivision shall constitute a required work practice, equipment, design, or operational standard within the meaning of section III(h)(1) of the Clean Air Act.
- (6) Manufacturers of equipment used to control equipment leaks of volatile organic compounds may apply to the department for determination of equivalence for any equivalent means of emission limitation that achieves a reduction in emissions of volatile organic compounds achieved by the equipment, design, and operational requirements of this subsection. The department will make an equivalence determination according to the provisions of paragraphs 2, 3, 4, and 5.

p. Test methods and procedures.

- (1) Each owner or operator subject to the provisions of this subsection shall comply with the test method and procedure requirements provided in this subdivision.
- (2) Monitoring, as required in subdivisions c through o, shall comply with the following requirements:
- (a) Monitoring must comply with reference method 21.
- (b) The detection instrument shall meet the performance criteria of reference method 21.
- (c) The instrument must be calibrated before use on each day of its use by the methods specified in method 21.
- (d) Calibration gases must be:
- [1] Zero air (less than ten parts per million of hydrocarbon in air); and

[2] A mixture of methane or n-hexane and air at a concentration of approximately, but less than, ten thousand parts per million methane or n-hexane.

(e) The instrument probe must be traversed around all potential leak interfaces as close to the interface as possible as described in reference method 21.

(3) When equipment is tested for compliance with no detectable emissions as required in paragraph 5 of subdivision d, paragraph a of subdivision e, subdivision f, paragraph 6 of subdivision i, and paragraph 5 of subdivision l, the test shall comply with the following requirements:

(a) The requirements of subparagraphs a through d of paragraph 2 shall apply.

(b) The background level must be determined, as set forth in reference method 21.

(c) The instrument probe must be traversed around all potential leak interfaces as close to the interface as possible as described in reference method 21.

(d) The arithmetic difference between the maximum concentration indicated by the instrument and the background level is compared with five hundred parts per million for determining compliance.

(4) Each piece of equipment within a process unit is presumed to be in volatile organic compounds service unless an owner or operator demonstrates that the piece of equipment is not in volatile organic compounds service. For a piece of equipment to be considered not in volatile organic compounds service, it must be determined that the percent volatile organic compounds content can be reasonably expected never to exceed ten percent by weight. For purposes of determining the percent volatile organic compounds content in the process fluid that is contained in or contacts equipment, procedures that conform to the general methods described in A.S.T.M. E-260, E-168, E-169 must be used.

(a) If an owner or operator decides to exclude nonreactive organic compounds from the total quantity of organic compounds in determining the percent volatile organic compounds content of

the process fluid, the exclusion will be allowed if:

[1] Those substances excluded are those considered as having negligible photochemical reactivity by the department; and

[2] The owner or operator demonstrates that the percent organic content, excluding nonreactive organic compounds, can be reasonably expected never to exceed ten percent by weight.

(b) An owner or operator may use engineering judgment rather than the procedures in paragraph 4 and subparagraph a of paragraph 4 to demonstrate that the percent volatile organic compounds content does not exceed ten percent by weight, provided that the engineering judgment demonstrates that the volatile organic compounds content clearly does not exceed ten percent by weight. When an owner or operator and the department do not agree on whether a piece of equipment is not in volatile organic compounds service, however, the procedures in paragraph 4 and subparagraph a of paragraph 4 must be used to resolve the disagreement. If an owner or operator determines that a piece of equipment is in volatile organic compounds service, the determination can be revised only after following the procedures in paragraph 4 and subparagraph a of paragraph 4.

(5) Equipment is in light liquid service if the following conditions apply:

(a) The vapor pressure of one or more of the components is greater than 0.3 kilopascal at twenty degrees Celsius [68 degrees Fahrenheit]. Vapor pressures may be obtained from standard reference texts or may be determined by A.S.T.M. D-2879;

(b) The total concentration of the pure components having a vapor pressure greater than 0.3 kilopascals at twenty degrees Celsius [68 degrees Fahrenheit] is equal to or greater than twenty percent by weight; and

(c) The fluid is a liquid at operating conditions.

- (6) Samples used in conjunction with paragraphs 4, 5, and 7 shall be representative of the process fluid that is contained in or contacts the equipment or the gas being combusted in the flare.
- (7) Reference method 22 must be used to determine the compliance of flares with the visible emission provisions of this subsection.
- (a) The presence of a flare pilot flame must be monitored using a thermocouple or any other equivalent device to detect the presence of a flame.
- (b) The net heating value of the gas being combusted in a flare must be calculated using the following equation:

$$H_T = K \left(\frac{\sum_{i=1}^n C_i H_i}{i=1} \right)$$

where:

H_T = Net heating value of the sample, MJ/scm;
 where the net enthalpy per mole of off-gas is based on combustion at twenty-five degrees Celsius [77 degrees Fahrenheit] and seven hundred sixty mm Hg, but the standard temperature for determining the volume corresponding to the mole is twenty degrees.

$$K = \text{Constant} \frac{1}{1.740 \times 10^7} \left(\frac{1}{\text{ppm}} \right) \left(\frac{\text{g mole}}{\text{scm}} \right) \left(\frac{\text{MJ}}{\text{kcal.}} \right)$$

where:

standard temperature for g mole is 20°C.
scm

C_i = Concentration of sample component i in ppm, as measured by reference method 18 and A.S.T.M. D2504-67 (reapproved 1977).

H_i = Net heat of combustion of sample component i, kcal/g mole. The heats of combustion may be determined using A.S.T.M. D2382-76 if published values are not available or cannot be calculated.

(c) The actual exit velocity of a flare must be determined by dividing volumetric flow rate (in units of standard temperature and pressure), as determined by reference method 2, 2A, 2C, or 2D as appropriate; by the unobstructed (free) cross-sectional area of the flare tip.

(d) The maximum permitted velocity, V_{\max} , for air-assisted flares must be determined by the following equation:

$$\underline{V_{\max} = 8.706 + 0.7084 (H_T)}$$

$$\underline{V_{\max} = \text{Maximum permitted velocity, m/sec}}$$

$$\underline{8.706 = \text{Constant}}$$

$$\underline{0.7084 = \text{Constant}}$$

$$\underline{H_T = \text{The net heating value as determined in subparagraph b of paragraph 7.}}$$

q. Recordkeeping requirements.

(1) Each owner or operator subject to the provisions of this subsection shall comply with the recordkeeping requirements of this subdivision. An owner or operator of more than one affected facility subject to the provisions of this subsection may comply with the recordkeeping requirements for these facilities in one recordkeeping system if the system identifies each record by each facility.

(2) When each leak is detected as specified in subdivisions d, e, i, j, and n, the following requirements apply:

(a) A weatherproof and readily visible identification, marked with the equipment identification number, must be attached to the leaking equipment.

(b) The identification on a valve may be removed after it has been monitored for two successive months as specified in paragraph 3 of subdivision i and no leak has been detected during those two months.

(c) The identification on equipment except on a valve, may be removed after it has been repaired.

- (3) When each leak is detected as specified in subdivisions d, e, i, j, and n, the following information must be recorded in a log and must be kept for two years in a readily accessible location:
- (a) The instrument and operator identification numbers and the equipment identification number.
 - (b) The date the leak was detected and the dates of each attempt to repair the leak.
 - (c) Repair methods applied in each attempt to repair the leak.
 - (d) "Above ten thousand" if the maximum instrument reading measurement by the methods specified in paragraph 1 of subdivision p after each repair attempt is equal to or greater than ten thousand parts per million.
 - (e) "Repair delayed" and the reason for the delay if a leak is not repaired within fifteen calendar days after discovery of the leak.
 - (f) The signature of the owner or operator (or designate) whose decision it was that repair could not be effected without a process shutdown.
 - (g) The expected date of successful repair of the leak if a leak is not repaired within fifteen days.
 - (h) Dates of process unit shutdown that occur while the equipment is unrepaired.
 - (i) The date of successful repair of the leak.
- (4) The following information pertaining to the design requirements for closed vent systems and control devices described in subdivision 1 must be recorded and kept in a readily accessible location:
- (a) Detailed schematics, design specifications, and piping and instrumentation diagrams.
 - (b) The dates and descriptions of any changes in the design specifications.
 - (c) A description of the parameter or parameters monitored, as required in paragraph 5 of subdivision 1, to ensure that control devices are operated and maintained in conformance with

their design and an explanation of why that parameter (or parameters) was selected for the monitoring.

- (d) Periods when the closed vent systems and control devices required in subdivisions d, e, f, and g are not operated as designed, including periods when a flare pilot light does not have a flame.
 - (e) Dates of startups and shutdowns of the closed vent systems and control devices required in subdivisions d, e, f, and g.
- (5) The following information pertaining to all equipment subject to the requirements in subdivisions c to l must be recorded in a log that is kept in a readily accessible location:
- (a) A list of identification numbers for equipment subject to the requirements of this subsection.
 - (b) A list of identification numbers for equipment that are designated for no detectable emissions under the provisions of paragraph 5 of subdivision d, paragraph 9 of subdivision e, and paragraph 6 of subdivision i.
 - [1] The designation of equipment as subject to the requirements of paragraph 5 of subdivision d, paragraph 9 of subdivision e, and paragraph 6 of subdivision i must be signed by the owner or operator.
 - (c) A list of equipment identification numbers for pressure relief devices required to comply with subdivision f.
 - (d) The dates of each compliance test as required in paragraph 5 of subdivision d, paragraph 9 of subdivision e, subdivision f, and paragraph 6 of subdivision i.
 - (e) The background level measured during each compliance test.
 - (f) The maximum instrument reading measured at the equipment during each compliance test.
 - (g) A list of identification numbers for equipment in vacuum service.

- (6) The following information pertaining to all valves subject to the requirements of paragraphs 7 and 8 of subdivision i must be recorded in a log that is kept in a readily accessible location:
- (a) A list of identification numbers for valves that are designated as unsafe to monitor, an explanation for each valve stating why the valve is unsafe to monitor, and the plan for monitoring each valve.
 - (b) A list of identification numbers for valves that are designated as difficult to monitor, an explanation for each valve stating why the valve is difficult to monitor, and the schedule for monitoring each valve.
- (7) The following information must be recorded for valves complying with subdivision n:
- (a) A schedule of monitoring.
 - (b) The percent of valves found leaking during each monitoring period.
- (8) The following information must be recorded in a log that is kept in a readily accessible location:
- (a) Design criterion required in subparagraph e of paragraph 4 of subdivision d and subparagraph a of paragraph 5 of subdivision e and explanation of the design criterion; and
 - (b) Any changes to this criterion and the reasons for the changes.
- (9) The following information must be recorded in a log that is kept in a readily accessible location for use in determining exemptions as provided in paragraph 4 of subdivision a:
- (a) An analysis demonstrating the design capacity of the affected facility;
 - (b) A statement listing the feed or raw materials and products from the affected facilities and an analysis demonstrating whether these chemicals are heavy liquids or beverage alcohol; and
 - (c) An analysis demonstrating that equipment is not in volatile organic compounds service.

- (10) Information and data used to demonstrate that a piece of equipment is not in volatile organic compounds service must be recorded in a log that is kept in a readily accessible location.
- (11) The provisions of subdivisions b and d of subsection 6 of section 33-15-12-01 do not apply to affected facilities subject to this subsection.

r. Reporting requirements.

- (1) Each owner or operator subject to the provisions of this subsection shall submit semiannual reports to the department beginning six months after the initial startup date.
- (2) The initial semiannual report to the department shall include the following information:
 - (a) Process unit identification.
 - (b) Number of valves subject to the requirements of subdivision i, excluding those valves designated for no detectable emissions under the provisions of paragraph 6 of subdivision i.
 - (c) Number of pumps subject to the requirements of subdivision d, excluding those pumps designated for no detectable emissions under the provisions of paragraph 5 of subdivision d and those pumps complying with paragraph 6 of subdivision d.
 - (d) Number of compressors subject to the requirements of subdivision e, excluding those compressors designated for no detectable emissions under the provisions of paragraph 9 of subdivision e and those compressors complying with paragraph 8 of subdivision e.
- (3) All semiannual reports to the department must include the following information, summarized from the information in subdivision q:
 - (a) Process unit identification.
 - (b) For each month during the semiannual reporting period.
 - [1] Number of valves for which leaks were detected as described in paragraph 2 of subdivision i or subdivision n.

[2] Number of valves for which leaks were not repaired as required in paragraph 4 of subdivision i.

[3] Number of pumps for which leaks were detected as described in paragraph 3 of subdivision d and subparagraph f of paragraph 4 of subdivision d.

[4] Number of pumps for which leaks were not repaired as required in paragraph 3 of subdivision d and item 1 of subparagraph f of paragraph 4 of subdivision d.

[5] Number of compressors for which leaks were detected as described in paragraph 6 of subdivision e.

[6] Number of compressors for which leaks were not repaired as required in paragraph 7 of subdivision e.

[7] The facts that explain each delay of repair and, where appropriate, why a process unit shutdown was technically infeasible.

(c) Dates of process unit shutdowns which occurred within the semiannual reporting period.

(d) Revisions to items reported according to paragraph 2 if changes have occurred since the initial report or subsequent revisions to the initial report.

(4) An owner or operator electing to comply with the provisions of subdivisions m and n shall notify the department of the alternative standard selected ninety days before implementing either of the provisions.

(5) An owner or operator shall report the results of all performance tests in accordance with subsection 7 of section 33-15-12-01. The provisions of subdivision d of subsection 7 of section 33-15-12-01 do not apply to affected facilities subject to the provisions of this subsection except that an owner or operator must notify the department of the schedule for the initial performance tests at least thirty days before the initial performance tests.

s. Reconstruction. For the purpose of this subsection:

(1) The cost of the following frequently replaced components of the facility may not be considered in calculating either the "fixed capital cost of the new components" or the "fixed capital costs that would be required to construct a comparable new facility" under subsection 13 of section 33-15-12-01: pump seals, nuts and bolts, rupture disks, and packings.

(2) Under subsection 13 of section 33-15-12-01, the "fixed capital cost of new components" includes the fixed capital cost of all depreciable components (except components specified in paragraph 1) which are or will be replaced pursuant to all continuous programs of component replacement which are commenced within any two-year period following the applicability date for the appropriate subsection. (See the "Applicability and designation of affected facility" subdivision of the appropriate subsection.) For purposes of this paragraph, "commenced" means that an owner or operator has undertaken a continuous program of component replacement or that an owner or operator has entered into a contractual obligation to undertake and complete, within a reasonable time, a continuous program of component replacement.

t. List of chemicals produced by affected facilities. The chemicals are produced, as intermediates for final products, by process units covered under this subsection as listed in 40 CFR 60.489. The applicability date for process units producing one or more of these chemicals is January 5, 1981.

24. Standards of performance for equipment leaks of volatile organic compounds in petroleum refineries.

a. Applicability and designation of affected facility.

(1) The provisions of this subsection apply to affected facilities in petroleum refineries.

(2) A compressor is an affected facility.

(3) The group of all the equipment (defined in subdivision b) within a process unit is an affected facility.

(4) Any affected facility under paragraph 1 of this subdivision that commences construction or modifications after January 4, 1983, is subject to the requirements of this subsection.

(5) Addition or replacement of equipment (defined in subdivision b) for the purpose of process improvement

which is accomplished without a capital expenditure shall not by itself be considered a modification under this subsection.

(6) Facilities subject to subsections 22 and 23 are excluded from this subsection.

b. Definitions.

(1) "Equipment" means each valve, pump, pressure relief device, sampling connection system, open-ended valve or line, and flange or other connector in volatile organic compounds service. For the purposes of recordkeeping and reporting only, compressors are considered equipment.

(2) "In hydrogen service" means that a compressor contains a process fluid that meets the conditions specified in paragraph 2 of subdivision d.

(3) "In light liquid service" means that the piece of equipment contains a liquid that meets the conditions specified in paragraph 3 of subdivision d.

(4) "Petroleum refinery" means any facility engaged in producing gasoline, kerosene, distillate fuel oils, residual fuel oils, lubricants, or other products through the distillation of petroleum, or through the redistillation, cracking, or reforming of unfinished petroleum derivatives.

(5) "Petroleum" means the crude oil removed from the earth and the oils derived from tar sands, shale, and coal.

(6) "Process unit" means components assembled to produce intermediate or final products from petroleum, unfinished petroleum derivatives, or other intermediates; a process unit can operate independently if supplied with sufficient feed or raw materials and sufficient storage facilities for the product.

c. Standards.

(1) Each owner or operator subject to the provisions of this subsection shall comply with the requirements of subdivisions c to l of subsection 23 as soon as practicable, but no later than one hundred eighty days after initial startup.

- (2) An owner or operator may elect to comply with the requirements of subdivisions m and n of subsection 23.
- (3) An owner or operator may apply to the department and administrator for a determination of equivalency for any means of emission limitation that achieves a reduction in emissions of volatile organic compounds at least equivalent to the reduction in emissions of volatile organic compounds achieved by the controls required in this subsection. In doing so, the owner or operator shall comply with requirements of subdivision o of subsection 23.
- (4) Each owner or operator subject to the provisions of this subsection shall comply with the provisions of subdivision p of subsection 23 except as provided in subdivision d of this subsection.
- (5) Each owner or operator subject to the provisions of this subsection shall comply with the provisions of subdivisions q and r of subsection 23.

d. Exceptions.

- (1) Each owner or operator subject to the provisions of this subsection may comply with the following exceptions to the provisions of subsection 23.
- (2) Compressors in hydrogen service are exempt from the requirements of subdivision c if an owner or operator demonstrates that a compressor is in hydrogen service.
 - (a) Each compressor is presumed not to be in hydrogen service unless an owner or operator demonstrates that the piece of equipment is in hydrogen service. For a piece of equipment to be considered in hydrogen service, it must be determined that the percent hydrogen content can be reasonably expected always to exceed fifty percent by volume. For purposes of determining the percent hydrogen content in the process fluid that is contained in or contacts a compressor, procedures that conform to the general method described in A.S.T.M. E-260, E-168, or E-169 must be used.
 - (b) An owner or operator may use engineering judgment rather than procedures in subparagraph a of paragraph 2 of this subdivision to demonstrate that the percent content exceeds fifty percent by volume,

provided the engineering judgment demonstrates that the content clearly exceeds fifty percent by volume. When an owner or operator and the department do not agree on whether a piece of equipment is in hydrogen service, however, the procedures in subparagraph a of paragraph 2 must be used to resolve the disagreement. If an owner or operator determines that a piece of equipment is in hydrogen service, the determination can be revised only after following the procedures in subparagraph a of paragraph 2.

- (3) Any existing reciprocating compressor that becomes an affected facility under provisions of subsection 12 or 13 of section 33-15-12-01 is exempt from paragraphs 1, 2, 3, 4, 5, and 8 of subdivision e of subsection 23 provided the owner or operator demonstrates that recasting the distance piece or replacing the compressor are the only options available to bring the compressor into compliance with the provisions of paragraphs 1, 2, 3, 4, 5, and 8 of subdivision e of subsection 23.
- (4) An owner or operator may use the following provisions in addition to paragraph 5 of subdivision p of subsection 23: Equipment is in light liquid service if the percent evaporated is greater than ten percent at one hundred fifty degrees Celsius [302 degrees Fahrenheit] as determined by A.S.T.M. method D-86.

25. Standards of performance for bulk gasoline terminals.

a. Applicability and designation of affected facility.

- (1) The affected facility to which the provisions of this subsection apply is the total of all the loading racks at the bulk gasoline terminal which deliver liquid product into gasoline tank trucks.
- (2) Each facility under paragraph 1 of this subdivision, the construction or modification of which is commenced after December 17, 1980, is subject to the provisions of this subsection.
- (3) For purposes of this subsection, any replacement of components of an existing facility, described in paragraph 1, commenced before August 18, 1983, in order to comply with any emission standard adopted by a state or political subdivision thereof will not be considered a reconstruction under the provisions of subsection 13 of section 33-15-12-01.

b. Definitions. As used in this subsection, all terms not defined herein shall have the meaning given them in North Dakota Century Code chapter 23-25, and in subsection 2 of section 33-15-12-01.

- (1) "Bulk gasoline terminal" means any gasoline facility which received gasoline by pipeline, ship, or barge, and has a gasoline throughput greater than seventy-five thousand seven hundred liters [19,984.80 gallons] per day. Gasoline throughput shall be the maximum calculated design throughput as may be limited by compliance with an enforceable condition under federal, state, or local law and discoverable by the department and any other person.
- (2) "Continuous vapor processing system" means a vapor processing system that treats total organic compounds vapors collected from gasoline tank trucks on a demand basis without intermediate accumulation in a vapor holder.
- (3) "Existing vapor processing system" means a vapor processing system (capable of achieving emissions to the atmosphere no greater than eighty milligrams of total organic compounds per liter of gasoline loaded), the construction or refurbishment of which was commenced before December 17, 1980, and which was not constructed or refurbished after that date.
- (4) "Gasoline" means any petroleum distillate or petroleum distillate/alcohol blend having a Reid vapor pressure of 27.6 kilopascals or greater which is used as a fuel for internal combustion engines.
- (5) "Gasoline tank truck" means a delivery tank truck used at bulk gasoline terminals which is loading gasoline or which has loaded gasoline on the immediately previous load.
- (6) "Intermittent vapor processing system" means a vapor processing system that employs an intermediate vapor holder to accumulate total organic compounds vapors collected from gasoline tank trucks, and treats the accumulated vapors only during automatically controlled cycles.
- (7) "Loading rack" means the loading arms, pumps, meters, shutoff valves, relief valves, and other piping and valves necessary to fill delivery tank trucks.
- (8) "Refurbishment" means, with reference to a vapor processing system, replacement of components of, or addition of components to, the system within any

two-year period such that the fixed capital cost of the new components required for such component replacement or addition exceeds fifty percent of the cost of a comparable entirely new system.

- (9) "Total organic compounds" means those compounds measured according to the procedures in subdivision d.
- (10) "Vapor collection system" means any equipment used for containing total organic compounds vapors displaced during the loading of gasoline tank trucks.
- (11) "Vapor processing system" means all equipment used for recovering or oxidizing total organic compounds vapors displaced from the affected facility.
- (12) "Vaportight gasoline tank truck" means a gasoline tank truck which has demonstrated within the twelve preceding months that its produce delivery tank will sustain a pressure change of not more than seven hundred fifty pascals [75 mm of water] within five minutes after it is pressurized to four thousand five hundred pascals [450 mm of water]. This capability is to be demonstrated using the pressure test procedure specified in reference method 27.

c. Standard for volatile organic compound (VOC) emissions from bulk gasoline terminals. On and after the date on which subdivision a of subsection 7 of section 33-15-12-01 requires a performance test to be completed, the owner or operator of each bulk gasoline terminal containing an affected facility shall comply with the requirements of this subdivision.

- (1) Each affected facility must be equipped with a vapor collection system designed to collect the total organic compounds vapors displaced from tank trucks during product loading.
- (2) The emissions to the atmosphere from the vapor collection system due to the loading of liquid product into gasoline tank trucks are not to exceed thirty-five milligrams of total organic compounds per liter of gasoline loaded, except as noted in paragraph 3 of this subdivision.
- (3) For each affected facility equipped with an existing vapor processing system, the emissions to the atmosphere from the vapor collection system due to the loading of liquid product into gasoline tank trucks are not to exceed eighty milligrams of total organic compounds per liter of gasoline loaded.

- (4) Each vapor collection system must be designed to prevent any total organic compounds vapors collected at one loading rack from passing to another loading rack.
- (5) Loadings of liquid product into gasoline tank trucks must be limited to vaportight gasoline tank trucks using the following procedures:
- (a) The owner or operator shall obtain the vaportightness documentation described in paragraph 2 of subdivision f for each gasoline tank truck which is to be loaded at the affected facility.
 - (b) The owner or operator shall require the tank identification number to be recorded as each gasoline tank truck is loaded at the affected facility.
 - (c) The owner or operator shall cross-check each tank identification number obtained in subparagraph b of paragraph 5 of this subdivision with the file of tank vaportightness documentation within two weeks after the corresponding tank is loaded.
 - (d) The terminal owner or operator shall notify the owner or operator of each nonvaportight gasoline tank truck loaded at the affected facility within three weeks after the loading has occurred.
 - (e) The terminal owner or operator shall take steps assuring that the nonvaportight gasoline tank truck will not be reloaded at the affected facility until vaportightness documentation for that tank is obtained.
 - (f) Alternate procedures to those described in subparagraphs a through e of paragraph 5 of this subdivision for limiting gasoline tank truck loadings may be used upon application to, and approval by, the department.
- (6) The owner or operator shall act to assure that loadings of gasoline tank trucks at the affected facility are made only into tanks equipped with vapor collection equipment that is compatible with the terminal's vapor collection system.
- (7) The owner or operator shall act to assure that the terminal's and the tank truck's vapor collection

systems are connected during each loading of a gasoline tank truck at the affected facility. Examples of actions to accomplish this include training drivers in the hookup procedures and posting visible reminder signs at the affected loading racks.

- (8) The vapor collection and liquid loading equipment shall be designed and operated to prevent gauge pressure in the delivery tank from exceeding four thousand five hundred pascals [450 mm of water] during product loading. This level is not to be exceeded when measured by the procedures specified in paragraph 2 of subdivision d.
- (9) No pressure-vacuum vent in the bulk gasoline terminal's vapor collection system shall begin to open at a system pressure less than four thousand five hundred pascals [450 mm of water].
- (10) Each calendar month, the vapor collection system, the vapor processing system, and each loading rack handling gasoline must be inspected during the loading of gasoline tank trucks for total organic compounds liquid or vapor leaks. For purposes of this paragraph, detection methods incorporating sight, sound, or smell are acceptable. Each detection of a leak shall be recorded and the source of the leak repaired within fifteen calendar days after it is detected.

d. Test methods and procedures.

- (1) Subdivision f of subsection 7 of section 33-15-12-01 does not apply to the performance test procedures required by this subsection.
- (2) For the purpose of determining compliance with paragraph 8 of subdivision c, the following procedures must be used:
 - (a) Calibrate and install a pressure measurement device (liquid manometer, magnehelic gauge, or equivalent instrument), capable of measuring up to five hundred millimeters of water gauge pressure with ± 2.5 millimeters of water precision.
 - (b) Connect the pressure measurement device to a pressure tap in the terminal's vapor collection system, located as close as possible to the connection with the gasoline tank truck.

- (c) During the performance test, record the pressure every five minutes while a gasoline tank truck is being loaded, and record the highest instantaneous pressure that occurs during each loading. Every loading position must be tested at least once during the performance test.
- (3) For the purpose of determining compliance with the mass emission limitations of paragraphs 2 and 3 of subdivision c, the following reference methods must be used:
- (a) For the determination of volume at the exhaust vent:
- [1] Method 2B for combustion vapor processing systems.
- [2] Method 2A for all other vapor processing systems.
- (b) For the determination of total organic compounds concentration at the exhaust vent, method 25A or 25B. The calibration gas must be either propane or butane.
- (4) Immediately prior to a performance test required for determination of compliance with paragraphs 2, 3, and 8 of subdivision c, all potential sources of vapor leakage in the terminal's vapor collection system equipment must be monitored for leaks using method 21. The monitoring must be conducted only while a gasoline tank truck is being loaded. A reading of ten thousand ppmv or greater as methane must be considered a leak. All leaks must be repaired prior to conducting the performance test.
- (5) The test procedure for determining compliance with paragraphs 2 and 3 of subdivision c is as follows:
- (a) All testing equipment must be prepared and installed as specified in the appropriate test methods.
- (b) The time period for a performance test must be not less than six hours, during which at least three hundred thousand liters [79,200 gallons] of gasoline are loaded. If the throughput criterion is not met during the initial six hours, the test may be either continued until the throughput criterion is met, or resumed the next day with another complete six hours of testing. As much as possible, testing should be

conducted during the six-hour period in which the highest throughput normally occurs.

(c) For intermittent vapor processing systems:

[1] The vapor holder level must be recorded at the start of the performance test. The end of the performance test shall coincide with a time when the vapor holder is at its original level.

[2] At least two startups and shutdowns of the vapor processor shall occur during the performance test. If this does not occur under automatically controlled operation, the system must be manually controlled.

(d) The volume of gasoline dispensed during the performance test period at all loading racks whose vapor emissions are controlled by the processing system being tested shall be determined. This volume may be determined from terminal records or from gasoline dispensing meters at each loading rack.

(e) An emission testing interval shall consist of each five-minute period during the performance test. For each interval:

[1] The reading from each measurement instrument must be recorded; and

[2] The volume exhausted and the average total organic compounds concentration in the exhaust vent must be determined, as specified in the appropriate test method. The average total organic compounds concentration shall correspond to the volume measurement by taking into account the sampling system response time.

(f) The mass emitted during each testing interval must be calculated as follows:

$$\underline{M_{ei}} = 10^{-6} \underline{KV_{es} C_e}$$

where:

$\underline{M_{ei}}$ = mass of total organic compounds emitted during testing interval i , mg.

$\underline{V_{es}}$ = volume of air-vapor mixture exhausted, $\underline{m^3}$, at standard conditions.

C_e = total organic compounds concentration
(as measured) at the exhaust vent,
ppmv.

K = density of calibration gas, mg/m³, at
standard conditions.

= 1.83 x 10⁶, for propane

= 2.41 x 10⁶, for butane

S = standard conditions, 20°C and 760 mm Hg.

(g) The total organic compounds mass emission must
be calculated as follows:

$$E = \frac{\sum_{i=1}^n M_{ei}}{L}$$

where:

E = mass of total organic compounds
emitted per volume of gasoline loaded,
mg/liter.

M_{ei} = mass of total organic compounds
emitted during testing interval i, mg.

L = total volume of gasoline loaded,
liters.

n = number of testing intervals.

(6) The owner or operator may adjust the emission results
to exclude the methane and ethane content in the
exhaust vent by any method approved by the
department.

e. [Reserved]

f. Reporting and recordkeeping.

(1) The tank truck vaportightness documentation required
under subparagraph a of paragraph 5 of subdivision c
must be kept on file at the terminal in a permanent
form available for inspection.

(2) The documentation file for each gasoline tank truck must be updated at least once per year to reflect current test results as determined by method 27. This documentation must include, as a minimum, the following information:

(a) Test title: gasoline delivery tank pressure test - EPA reference method 27.

(b) Tank owner and address.

(c) Tank identification number.

(d) Testing location.

(e) Date of test.

(f) Tester name and signature.

(g) Witnessing inspector, if any: name, signature, and affiliation.

(h) Test results: actual pressure change in five minutes, millimeters of water (average for two runs).

(3) A record of each monthly leak inspection required under paragraph 10 of subdivision c must be kept on file at the terminal for at least two years. Inspection records must include, as a minimum, the following information:

(a) Date of inspection.

(b) Findings (may indicate no leaks discovered; or location, nature, and severity of each leak).

(c) Leak determination method.

(d) Corrective action (date each leak repaired; reasons for any repair interval in excess of fifteen days).

(e) Inspector name and signature.

(4) The terminal owner or operator shall keep documentation of all notifications required under subparagraph d of paragraph 5 of subdivision c on file at the terminal for at least two years.

(5) [Reserved]

- (6) The owner or operator of an affected facility shall keep records of all replacements or additions of components performed on an existing vapor processing system for at least three years.

g. Reconstruction.

- (1) The cost of the following frequently replaced components of the affected facility may not be considered in calculating either the "fixed capital cost of the new components" or the "fixed capital costs that would be required to construct a comparable entirely new facility" under subsection 13 of section 33-15-12-01: pump seals, loading arm gaskets and swivels, coupler gaskets, overfill sensor couplers and cables, flexible vapor hoses, and grounding cables and connectors.

- (2) Under subsection 13 of section 33-15-12-01, the "fixed capital costs of the new components" includes the fixed capital cost of all depreciable components (except components specified in paragraph 1) which are or will be replaced pursuant to all continuous programs of component replacement which are commenced within any two-year period following December 17, 1980. For purposes of this paragraph, "commenced" means that an owner or operator has undertaken a continuous program of component replacement or that an owner or operator has entered into a contractual obligation to undertake and complete, within a reasonable time, a continuous program of component replacement.

26. Standards of performance for nonmetallic mineral processing plants.

a. Applicability and designation of affected facility.

- (1) Except as provided in paragraphs 2, 3, and 4 of this subdivision, the provisions of this subsection are applicable to the following affected facilities in fixed or portable nonmetallic mineral processing plants: each crusher, grinding mill, screening operation, bucket elevator, belt conveyor, bagging operation, storage bin, enclosed truck, or railcar loading station.

- (2) An affected facility that is subject to the provisions of subsection 3 or 6 of section 33-15-12-04 or that follows in the plant process any facility subject to the provisions of subsection 3 or 6 of section 33-15-12-04 is not subject to the provisions of this subsection.

(3) Facilities at the following plants are not subject to the provisions of this subsection:

(a) Fixed sand and gravel plants and crushed stone plants with capacities, as defined in subdivision b, of twenty-three megagrams per hour [25 tons per hour] or less;

(b) Portable sand and gravel plants and crushed stone plants with capacities, as defined in subdivision b, of one hundred thirty-six megagrams per hour [150 tons per hour] or less; and

(c) Common clay plants and pumice plants with capacities, as defined in subdivision b, of nine megagrams per hour [10 tons per hour] or less.

(4) When an existing facility is replaced by a piece of equipment of equal or smaller size, as defined in subdivision b, having the same function as the existing facility, the new facility is exempt from the provisions of subdivisions c, e, and f except as provided for in subparagraph b of paragraph 4 of this subdivision.

(a) An owner or operator seeking to comply with this paragraph shall comply with the reporting requirements of paragraphs 1 and 2 of subdivision g.

(b) An owner or operator replacing all existing facilities in a production line with new facilities does not qualify for the exemption described in paragraph 4 and must comply with the provisions of subdivisions c, e, and f.

(5) An affected facility under paragraph 1 that commences construction, reconstruction, or modification after August 31, 1983, is subject to the requirements of this subsection.

b. Definitions. As used in this subsection, all terms not defined herein shall have the meaning given them in North Dakota Century Code chapter 23-25 and in subsection 2 of section 33-15-12-01.

(1) "Bagging operation" means the mechanical process by which bags are filled with nonmetallic minerals.

(2) "Belt conveyor" means a conveying device that transports material from one location to another by

means of an endless belt that is carried on a series of idlers and routed around a pulley at each end.

- (3) "Bucket elevator" means a conveying device of nonmetallic minerals consisting of a head and foot assembly which supports and drives an endless single or double strand chain or belt to which buckets are attached.
- (4) "Building" means any frame structure with a roof.
- (5) "Capacity" means the cumulative rated capacity of all initial crushers that are part of the plant.
- (6) "Capture system" means the equipment (including enclosures, hoods, ducts, fans, dampers, etc.) used to capture and transport particulate matter generated by one or more process operations to a control device.
- (7) "Control device" means the air pollution control equipment used to reduce particulate matter emissions released to the atmosphere from one or more process operations at a nonmetallic mineral processing plant.
- (8) "Conveying system" means a device for transporting materials from one piece of equipment or location to another location within a plant. Conveying systems include, but are not limited to, the following: feeders, belt conveyors, bucket elevators, and pneumatic systems.
- (9) "Crusher" means a machine used to crush any nonmetallic minerals, and includes, but is not limited to, the following types: jaw, gyratory, cone, roll, rod, mill, hammermill, and impactor.
- (10) "Enclosed truck or railcar loading station" means that portion of a nonmetallic mineral processing plant where nonmetallic minerals are loaded by an enclosed conveying system into enclosed trucks or railcars.
- (11) "Fixed plant" means any nonmetallic mineral processing plant at which the processing equipment specified in paragraph 1 of subdivision a is attached by a cable, chain, turnbucket, bolt, or other means (except electrical connections) to any anchor, slab, or structure including bedrock.
- (12) "Fugitive emission" means particulate matter that is not collected by a capture system and is released to the atmosphere at the point of generation.

- (13) "Grinding mill" means a machine used for the wet or dry fine crushing of any nonmetallic mineral. Grinding mills include, but are not limited to, the following types: hammer, roller, rod, pebble and ball, and fluid energy. The grinding mill includes the air conveying system, air separator, or air classifier, where such systems are used.
- (14) "Initial crusher" means any crusher into which nonmetallic minerals can be fed without prior crushing in the plant.
- (15) "Nonmetallic mineral" means any of the following minerals or any mixture of which the majority is any of the following minerals:
- (a) Crushed and broken stone, including limestone, dolomite, granite, traprock, sandstone, quartz, quartzite, marl, marble, slate, shale, oil shale, and shell.
 - (b) Sand and gravel.
 - (c) Clay, including kaolin, fireclay, bentonite, fuller's earth, ball clay, and common clay.
 - (d) Rock salt.
 - (e) Gypsum.
 - (f) Sodium compounds, including sodium carbonate, sodium chloride, and sodium sulfate.
 - (g) Pumice.
 - (h) Gilsonite.
 - (i) Talc and pyrophyllite.
 - (j) Boron, including borax, kernite, and colemanite.
 - (k) Barite.
 - (l) Fluorospars.
 - (m) Feldspar.
 - (n) Diatomite.
 - (o) Perlite.
 - (p) Vermiculite.

- (q) Mica.
- (r) Kyanite, including andalusite, sillimanite, topaz, and dumortierite.
- (16) "Nonmetallic mineral processing plant" means any combination of equipment that is used to crush or grind any nonmetallic mineral wherever located, including lime plants, power plants, steel mills, asphalt concrete plants, portland cement plants, or any other facility processing nonmetallic minerals except as provided in paragraphs 2 and 3 of subdivision a.
- (17) "Portable plant" means any nonmetallic mineral processing plant that is mounted on any chassis or skids and may be moved by the application of a lifting or pulling force. In addition, there may be no cable, chain, turnbuckle, bolt, or other means (except electrical connections) by which any piece of equipment is attached or clamped to any anchor, slab, or structure, including bedrock that must be removed prior to the application of a lifting or pulling force for the purpose of transporting the unit.
- (18) "Production line" means all affected facilities (crushers, grinding mills, screening operations, bucket elevators, belt conveyors, bagging operations, storage bins, and enclosed truck and railcar loading stations) which are directly connected or are connected together by a conveying system.
- (19) "Screening operation" means a device for separating material according to size by passing undersize material through one or more mesh surfaces (screens) in series, and retaining oversize material on the mesh surfaces (screens).
- (20) "Size" means the rated capacity in tons per hour of a crusher, grinding mill, bucket elevator, bagging operation, or enclosed truck or railcar loading station; the total surface area of the top screen of a screening operation; the width of a conveyor belt; and the rated capacity in tons of a storage bin.
- (21) "Stack emission" means the particulate matter that is released to the atmosphere from a capture system.
- (22) "Storage bin" means a facility for storage (including surge bins) or nonmetallic minerals prior to further processing or loading.

- (23) "Transfer point" means a point in a conveying operation where the nonmetallic mineral is transferred to or from a belt conveyor except where the nonmetallic mineral is being transferred to a stockpile.
- (24) "Truck dumping" means the unloading of nonmetallic minerals from movable vehicles designed to transport nonmetallic minerals from one location to another. Movable vehicles include, but are not limited to: trucks, front-end loaders, skip hoists, and railcars.
- (25) "Vent" means an opening through which there is mechanically induced airflow for the purpose of exhausting from a building air carrying particulate matter emissions from one or more affected facilities.

c. Standard for particulate matter.

- (1) On and after the date on which the performance test required to be conducted by subsection 7 of section 33-15-12-01 is completed, no owner or operator subject to the provisions of this subsection may cause to be discharged into the atmosphere from any transfer point on belt conveyors or from any other affected facility any stack emissions which:
- (a) Contain particulate matter in excess of 0.05 gram per dry cubic meter at standard conditions;
or
- (b) Exhibit greater than seven percent opacity, unless the stack emissions are discharged from an affected facility using a wet scrubbing control device. Facilities using a wet scrubber must comply with the reporting provisions of paragraphs 3, 4, and 5 of subdivision g.
- (2) On and after the sixtieth day after achieving the maximum production rate at which the affected facility will be operated, but not later than one hundred eighty days after initial startup, no owner or operator subject to the provisions of this subsection may cause to be discharged into the atmosphere from any transfer point on belt conveyors or from any other affected facility any fugitive emissions which exhibit greater than ten percent opacity, except as provided in paragraphs 3, 4, and 5.
- (3) On and after the sixtieth day after achieving the maximum production rate at which the affected

facility will be operated, but not later than one hundred eighty days after initial startup, no owner or operator may cause to be discharged into the atmosphere from any crusher, at which a capture system is not used, fugitive emissions which exhibit greater than fifteen percent opacity.

(4) Truck dumping of nonmetallic minerals into any screening operation, feed hopper, or crusher is exempt from the requirements of this subdivision.

(5) If any transfer point on a conveyor belt or any other affected facility is enclosed in a building, then each enclosed affected facility must comply with the emission limits in paragraphs 1, 2, and 3, or the building enclosing the affected facility or facilities must comply with the following emission limits:

(a) No owner or operator may cause to be discharged into the atmosphere from any building enclosing any transfer point on a conveyor belt or any other affected facility any visible fugitive emissions except emissions from a vent as defined in subdivision b.

(b) No owner or operator may cause to be discharged into the atmosphere from any vent of any building enclosing any transfer point on a conveyor belt or any other affected facility emissions which exceed the stack emission limits in paragraph 1.

d. Reconstruction.

(1) The cost of replacement of ore-contact surfaces on processing equipment may not be considered in calculating either the "fixed capital cost of the new components" or the "fixed capital cost that would be required to construct a comparable new facility" under subsection 13 of section 33-15-12-01. Ore-contact surfaces are crushing surfaces; screen meshes, bars, and plates; conveyor belts; and elevator buckets.

(2) Under subsection 13 of section 33-15-12-01, the "fixed capital cost of the new components" includes the fixed capital cost of all depreciable components (except components specified in paragraph 1) which are or will be replaced pursuant to all continuous programs of component replacement commenced within any two-year period following August 31, 1983.

e. Monitoring of operations. The owner or operator of any affected facility subject to the provisions of this subsection which uses a wet scrubber to control emissions shall install, calibrate, maintain, and operate the following monitoring devices:

(1) A device for the continuous measurement of the pressure loss of the gas stream through the scrubber. The monitoring device must be certified by the manufacturer to be accurate within ± 250 pascals ± 1 inch water gauge pressure and must be calibrated on an annual basis in accordance with manufacturer's instructions.

(2) A device for the continuous measurement of the scrubbing liquid flow rate to the wet scrubber. The monitoring device must be certified by the manufacturer to be accurate within ± 5 percent of design scrubbing liquid flow rate and must be calibrated on an annual basis in accordance with manufacturer's instructions.

f. Test methods and procedures.

(1) Reference methods in appendix A of this part, except as provided under subdivision b of subsection 7 of section 33-15-12-01, must be used to determine compliance with the standards prescribed under subdivision c as follows:

(a) Method 5 or method 17 for concentration of particulate matter and associated moisture content.

(b) Method 1 for sample and velocity traverses.

(c) Method 2 for velocity and volumetric flow rate.

(d) Method 3 for gas analysis.

(e) Method 9 for measuring opacity from stack emissions and process fugitive emissions, and emissions from building vents.

(f) Method 22 for measurement of visible fugitive emissions when determining compliance with the standard prescribed in paragraph 5 of subdivision c.

(2) For method 5, the following stipulations apply:

- (a) The sampling probe and filter holder may be operated without heaters if the gas stream being sampled is at ambient temperature.
 - (b) For gas streams above ambient temperature, the sampling train must be operated with a probe and filter temperature high enough to prevent water condensation on the filter but no higher than one hundred twenty-one degrees Celsius [250 degrees Fahrenheit].
 - (c) The minimum sample volume must be 1.7 dry cubic meters at standard conditions [60 dscf].
- (3) When determining compliance with the standard prescribed under paragraphs 2 and 3 of subdivision c shall adhere to the following stipulations in addition to those listed in method 9:
- (a) The minimum distance between the observer and the emission source must be 4.57 meters [15 feet].
 - (b) The observer shall, when possible, select a position that minimizes interference from other fugitive emission sources (e.g., road dust). Note that the required observer position relative to the sun (method 9, section 2.1) must be followed.
 - (c) For affected facilities utilizing wet dust suppression for particulate matter control, a visible mist is sometimes generated by the spray. The water mist must not be confused with particulate matter emissions and is not to be considered a visible emission. When a water mist of this nature is present, the observation of the emissions is to be made at a point in the plume where the mist is no longer visible.
 - (d) If emissions from two or more facilities continuously interfere so that the opacity of fugitive emissions from an individual affected facility cannot be read, the owner or operator may show compliance with the fugitive opacity standards in paragraphs 2 and 3 of subdivision c by:
 - [1] Causing the opacity of the combined emission stream from the facilities to meet the highest fugitive opacity standard applicable to any of the individual

affected facilities contributing to the emissions stream; or

[2] Separating emissions so that the opacity of emissions from each affected facility can be read to determine compliance with the applicable fugitive opacity limits specified for each facility in paragraphs 2 and 3 of subdivision c.

(4) When determining compliance with the standard prescribed under paragraphs 2 and 3 of subdivision c, using method 9, each performance test must consist of a minimum of thirty sets of twenty-four consecutive observations recorded at fifteen-second intervals, as described in method 9 of sections 2.4 and 2.5.

(5) When determining compliance with the standard prescribed under paragraph 5 of subdivision c, using method 22, the minimum total observation period for each building must be seventy-five minutes, and each side of the building and the roof must be observed for a minimum of fifteen minutes. Performance tests must be conducted while all affected facilities inside the building are operating.

g. Reporting and recordkeeping.

(1) Each owner or operator seeking to comply with paragraph 5 of subdivision a shall submit to the department the following information about the existing facility being replaced and the replacement piece of equipment.

(a) For a crusher, grinding mill, bucket elevator, bagging operation, or enclosed truck or railcar loading station:

[1] The rated capacity in tons per hour of the existing facility being replaced; and

[2] The rated capacity in tons per hour of the replacement equipment.

(b) For a screening operation:

[1] The total surface area of the top screen of the existing screening operation being replaced; and

[2] The total surface area of the top screen of the replacement screening operation.

- (c) For a conveyor belt:
 - [1] The width of the existing belt being replaced; and
 - [2] The width of the replacement conveyor belt.
- (d) For a storage bin:
 - [1] The rated capacity in tons of the existing storage bin being replaced; and
 - [2] The rated capacity in tons of replacement storage bins.
- (2) Each owner or operator seeking to comply with paragraph 4 of subdivision a shall submit the following data to the department.
 - (a) The information described in paragraph 1 of subdivision a.
 - (b) A description of the control device used to reduce particulate matter emissions from the existing facility and a list of all other pieces of equipment controlled by the same control device.
 - (c) The estimated age of the existing facility.
- (3) During the initial performance test of a wet scrubber, and daily thereafter, the owner or operator shall record the measurement of both the change in pressure of the gas stream across the scrubber and the scrubbing liquid flow rate.
- (4) After the initial performance test of a wet scrubber, the owner or operator shall submit semiannual reports to the department of occurrences when the measurements of the scrubber pressure loss (or gain) and liquid flow rate differ by more than ± 30 percent from those measurements recorded during the most recent performance test.
- (5) The reports required under paragraph 4 shall be postmarked within thirty days following end of the second and fourth calendar quarters.
- (6) The owner or operator of any affected facility shall submit written reports of the results of all performance tests conducted to demonstrate compliance with the standards set forth in subdivision c, including reports of opacity observations made using

method 9 to demonstrate compliance with paragraphs 2 and 3 of subdivision c and reports of observations using method 22 to demonstrate compliance with paragraph 5 of subdivision c.

27. Standards of performance for petroleum drycleaners.

a. Applicability and designation of affected facility.

(1) The provisions of this subsection are applicable to the following affected facilities located at a petroleum drycleaning plant with a total manufacturers' rated dryer capacity equal to or greater than thirty-eight kilograms [84 pounds]: petroleum solvent drycleaning, dryers, washers, filters, stills, and settling tanks.

(a) When the affected facility is installed in an existing plant that is not expanding the manufacturers' rated capacity of its petroleum solvent dryers, the total manufacturers' rated dryer capacity is the summation of the manufacturers' rated capacity for each existing petroleum solvent dryer.

(b) When the affected facility is installed in a plant that is expanding the manufacturers' rated capacity of its petroleum solvent dryers, the total manufacturers' rated dryer capacity is the summation of the manufacturers' rated dryer capacity for each existing and proposed new petroleum solvent dryer.

(c) When the affected facility is installed in a new plant, the total manufacturers' rated dryer capacity is the summation of the manufacturers' rated dryer capacity for each proposed new petroleum solvent dryer.

(d) The petroleum solvent dryers considered in the determination of the total manufacturers' rated dryer capacity are those new and existing dryers in the plant that will be in service at any time after the proposed new source or modification commences operation.

(2) Any facility under paragraph 1 that commences construction or modification after December 14, 1982, is subject to the requirements of this subsection.

b. Definitions. As used in this subsection, all terms not defined herein shall have the meaning given them in North

Dakota Century Code chapter 23-25, and in subsection 2 of section 33-15-12-01.

- (1) "Cartridge filter" means a discrete filter unit containing both filter paper and activated carbon that traps and removes contaminants from petroleum solvent, together with the piping and ductwork used in the installation of this device.
- (2) "Dryer" means a machine used to remove petroleum solvent from articles of clothing or other textile or leather goods, after washing and removing of excess petroleum solvent, together with the piping and ductwork used in the installation of this device.
- (3) "Manufacturers' rated dryer capacity" means the dryer's rated capacity of articles, in pounds or kilograms of clothing articles per load, dry basis, that is typically found on each dryer on the manufacturer's nameplate or in the manufacturer's equipment specifications.
- (4) "Perceptible leaks" means any petroleum solvent vapor or liquid leaks that are conspicuous from visual observation or that bubble after application of a soap solution, such as pools or droplets of liquid, open containers or solvent, or solvent laden waste standing open to the atmosphere.
- (5) "Petroleum drycleaner" means a drycleaning facility that uses petroleum solvent in a combination of washers, dryers, filters, stills, and settling tanks.
- (6) "Settling tank" means a container that gravimetrically separates oils, grease, and dirt from petroleum solvent, together with the piping and ductwork used in the installation of this device.
- (7) "Solvent filter" means a discrete solvent filter unit containing a porous medium that traps and removes contaminants from petroleum solvent, together with the piping and ductwork used in the installation of this device.
- (8) "Solvent recovery dryer" means a class of drycleaning dryers that employs a condenser to condense and recover solvent vapors evaporated in a closed-loop stream of heated air, together with the piping and ductwork used in the installation of this device.
- (9) "Still" means a device used to volatilize, separate, and recover petroleum solvent from contaminants

solvent, together with the piping and ductwork used in the installation of this device.

- (10) "Washer" means a machine which agitates fabric articles in a petroleum solvent bath and spins the articles to remove the solvent, together with the piping and ductwork used in the installation of this device.

c. Standards for volatile organic compounds.

- (1) Each affected petroleum solvent drycleaning dryer that is installed at a petroleum drycleaning plant shall be a solvent recovery dryer. The solvent recovery dryers must be properly installed, operated, and maintained.
- (2) Each affected petroleum solvent filter that is installed at a petroleum drycleaning plant must be a cartridge filter. Cartridge filters shall be drained in their sealed housing for at least eight hours prior to their removal.
- (3) Each manufacturer of an affected petroleum solvent dryer shall include leak inspection and leak repair cycle information in the operating manual and on a clearly visible label posted on each affected facility. Such information should state:

To protect against fire hazards, loss of valuable solvents, and emissions of solvent to the atmosphere, periodic inspection of this equipment for evidence of leaks and prompt repair of any leaks is recommended. The department recommends that the equipment be inspected every fifteen days and all vapor or liquid leaks be repaired within the subsequent fifteen-day period.

d. Equivalent equipment and procedures.

- (1) Upon written application from any person, the department and administrator may approve the use of equipment or procedures that have been demonstrated to its satisfaction to be equivalent, in terms of reducing volatile organic compounds emissions to the atmosphere, to those prescribed for compliance within a specified paragraph of this subsection. The application must contain a complete description of the equipment or procedure; the testing method; the date, time, and location of the test; and a description of the test results.

(2) The department and administrator will make a preliminary determination of whether or not the application for equivalency is approvable and will publish a notice of these findings. After notice and opportunity for public hearing, the department and administrator will publish the final determination.

e. Test methods and procedures. Each owner or operator of an affected facility subject to the provisions of paragraph 1 of subdivision c shall perform an initial test to verify that the flow rate of recovered solvent from the solvent recovery dryer at the termination of the recovery cycle is no greater than 0.05 liters per minute. This test must be conducted for a duration of no less than two weeks during which no less than fifty percent of the dryer loads must be monitored for their final recovered solvent flow rate. The suggested point for measuring the flow rate of recovered solvent is from the outlet of the solvent-water separator.

Near the end of the recovery cycle, the entire flow of recovered solvent should be diverted to a graduated cylinder. As the recovered solvent collects in the graduated cylinder, the elapsed time is monitored and recorded in periods of greater than or equal to one minute. At the same time, the volume of solvent in the graduated cylinder is monitored and recorded to determine the volume of recovered solvent that is collected during each time period. The recovered solvent flow rate is calculated by dividing the volume of solvent collected per period by the length of time elapsed during the period and converting the result with appropriate factors into units of liters per minute. The recovery cycle and the monitoring procedure should continue until the flow rate of solvent is less than or equal to 0.05 liter per minute. The type of articles cleaned and the total length of the cycle should then be recorded.

f. Each owner or operator of an affected facility subject to the provisions of this subsection shall maintain a record of the performance test required under subdivision e.

History: Amended effective February 1, 1982; October 1, 1987.

General Authority: NDCC ~~23-25~~ 23-25-03, 28-32-02

Law Implemented: NDCC 23-25-03

APPENDIX A - REFERENCE METHODS

The reference methods specified within chapter 33-15-12 are identical to those specified in ~~Appendix~~ appendix A, as amended, of Title 40 Code of Federal Regulations, Part 60 (40 CFR 60). The methods are as follows:-

- Method 1 - Sample and Velocity Traverses for Stationary Sources
- Method 2 - Determination of Stack Gas Velocity and Volumetric Flow Rate (Type S Pitot Tube)
- Method 3 - Gas Analysis for Carbon Dioxide, Excess Air, and Dry Molecular Weight
- Method 4 - Determination of Moisture in Stack Gases
- Method 5 - Determination of Particulate Emissions from Stationary Sources
- Method 6 - Determination of Sulfur Dioxide Emissions from Stationary Sources
- Method 7 - Determination of Nitrogen Oxide Emissions from Stationary Sources
- Method 8 - Determination of Sulfuric Acid Mist and Sulfur Dioxide Emissions from Stationary Sources
- Method 9 - Visual Determination of the Opacity of Emissions from Stationary Sources
- Method 10 - Determination of Carbon Monoxide Emissions from Stationary Sources
- Method 11 - Determination of Hydrogen Sulfide Emissions from Stationary Sources
- Method 12 - Reserved
- Method 13A - Determination of Total Fluoride Emissions from Stationary Sources - SPADNS Zirconium Lake Method
- Method 13B - Determination of Total Fluoride Emissions from Stationary Sources - Specific Ion Electrode Method
- Method 14 - Determination of Fluoride Emissions from Petroom Reef Monitors of Primary

Aluminum Plants

- Method 15 - Determination of Hydrogen Sulfide, Carbonyl Sulfide, and Carbon Disulfide Emissions from Stationary Sources
- Method 16 - Semicontinuous Determination of Sulfur Emissions from Stationary Sources
- Method 17 - Determination of Particulate Emissions from Stationary Sources (In-stack Filtration Method)
- Method 19 - Determination of Sulfur Dioxide Removal Efficiency and Particulate, Sulfur Dioxide and Nitrogen Oxides Emission Rates from Electric Utility Steam Generators
- Method 20 - Determination of Nitrogen Oxides, Sulfur Dioxide and Oxygen Emissions from Stationary Gas Turbines

APPENDIX B - PERFORMANCE SPECIFICATIONS

The performance specifications specified within chapter 33-15-12 are identical to those specified in Appendix A appendix B Part 60 and Appendix appendix E Part 52, as amended, of Title 40 of the Code of Federal Regulations. **The specifications are as follows:-**

Performance Specification 1 - Performance specifications and specification test procedures for transmissometer systems for continuous measurement of the opacity of stack emission:-

Performance Specification 2 - Performance specifications and specification test procedures for monitors of sulfur dioxide and nitrogen oxides from stationary sources:-

Performance Specification 3 - Performance specifications and specification test procedures for monitors of carbon dioxide and oxygen from stationary sources:-

Performance Specification 4 - Performance specifications and specification test procedures for monitoring systems for effluent stream gas volumetric flow rate:-

APPENDIX C - DETERMINATION OF EMISSION
RATE CHANGE

The determination of emission rate change method is identical to that specified in appendix C Part 60, as amended, of Title 40 of the Code of Federal Regulations.

33-15-13-01. General provisions.

1. **Applicability.** The provisions of this chapter apply to the owner or operator of any stationary source for which a standard is prescribed under this chapter.
2. **Definitions.** As used in this chapter, all terms not defined herein shall have the meaning given them in North Dakota Century Code chapter 23-25 or in section 33-15-01-04. Terms defined, both in this subsection and in section 33-15-01-04, shall have the meaning given them in this subsection:
 - a. "Alternative method" means any method of sampling and analyzing for an air pollutant which is not a reference method or an equivalent method but which has been demonstrated to the department's satisfaction to produce, in specific cases, results adequate for the department's determination of compliance.
 - b. "Capital expenditure" means an expenditure for a physical or operational change to a stationary source which exceeds the product of the applicable "annual asset guideline repair allowance percentage" specified in the latest edition of internal revenue service publication 534 and the stationary source's basis, as defined by section 1012 of the Internal Revenue Code. However, the total expenditure for a physical or operational change to a stationary source must not be reduced by any "excluded additions" as defined for stationary sources constructed after December 31, 1981, in internal revenue service publication 534, as would be done for tax purposes. In addition, "annual asset guideline repair allowance" may be used even though it is excluded for tax purposes in internal revenue service publication 534.
 - c. "Commenced" as applied to construction of a stationary source means that the owner or operator has obtained all necessary construction permits required by state air pollution regulations and either has-

(1) Begun, or cause to begin a continuous program of physical onsite construction of the source, or

(2) Entered into binding agreement, or contractual obligations, which cannot be canceled or modified without substantial loss to the owner or operator, to undertake a program of construction of the source to be completed within a reasonable time means

that an owner or operator has undertaken a continuous program of construction or modification or that an owner or operator has entered into a contractual obligation to undertake and complete, within a reasonable time, a continuous program of construction or modification.

e- d. "Compliance schedule" means the date or dates by which a source or category of sources is required to comply with the standards of this chapter and with any steps toward such compliance which are set forth under subsection 9.

d- e. "Construction" means fabrication, erection, or installation of a stationary source an affected facility.

e- f. "Effective date" is the date of promulgation in this article of an applicable standard or other limitation under this chapter.

f- "Equivalent method" means any method of sampling and analyzing for an air pollutant which has been demonstrated to the department's satisfaction to have a consistent and quantitatively known relationship to the reference method, under specified conditions.

g. "Existing source" means any stationary source which is not a new source.

h. "Modification" means any physical change in, or change in the method of operation of, a stationary source which increases the amount of any hazardous air pollutant emitted by such source or which results in the emission of any hazardous air pollutant not previously emitted, except that:

(1) Routine maintenance, repair, and replacement shall not be considered physical changes.

(2) The following shall not be considered a change in the method of operation:-

(a) An increase in the production rate, if such increase does not exceed the operating design capacity of the stationary source-

(b) An increase in hours of operation-

"Monitoring system" means any system, required under the monitoring sections in applicable sections, used to sample and condition (if applicable), to analyze, and to provide a record of emissions or process parameters.

- i. "New source" means any stationary source, the construction or modification of which is commenced after February 9, 1976.
 - j. "Owner or operator" means any person who owns, leases, operates, controls, or supervises a stationary source.
 - k. "Reference method" means any method of sampling and analyzing for an air pollutant, as described in Appendix appendix B to this chapter.
 - l. "Run" means the net period of time during which an emission sample is collected. Unless otherwise specified, a run may be either intermittent or continuous within the limits of good engineering practice.
 - m. "Standard" means an emission standard including a design, equipment, work practice, or operational standard for a hazardous air pollutant promulgated under this chapter.
 - n. "Startup" means the setting in operation of a stationary source for any purpose.
 - o. "Stationary source" means any building, structure, facility, or installation which emits or may emit any air pollutant which has been designated as hazardous by the department.
3. **Abbreviations.** The abbreviations used in this chapter have the following same meanings:-

avg- - average
Be - beryllium
°C - degree Celsius (centigrade)
cfm - cubic feet per minute
ft² - square feet
ft³ - cubic feet
°F - degree Fahrenheit

g - gram
 Hg - mercury
 in - inch
 inHg - inches of mercury
 inH₂O - inches of water
 I.D. - inside diameter
 l - liter
 mg - milligram (10^{-3} gram)
 ml - milliliter (10^{-3} liter)
 min - minute
 M - molar
 m³ - cubic meter
 nm - nanometer (10^{-9} meter)
 N - normal
 oz - ounce
 O.D. - outside diameter
 °R - degree Rankine
 % - percent
 sec. - second
 v/v - volume per volume
 w-g. - water gauge
 yd² - square yard
 ug - microgram (10^{-6} gram) as found in subsection 3
 of section 33-15-12-01.

4. Prohibited activities.

- a. After the effective date of any standard prescribed under this chapter, no owner or operator ~~shall~~ may construct or modify any stationary source subject to such standard without first obtaining a permit to construct from the department, except under an exemption granted by the president under section 112(c) (2) of the Federal Clean Air Act.
- b. After the effective date of any standard prescribed under this chapter, no owner or operator ~~shall~~ may operate any new source in violation of such standard except under an exemption granted by the president under section 112(c) (2) of the Federal Clean Air Act.
- c. Ninety days after the effective date of any standard prescribed under this chapter, no owner or operator ~~shall~~ may operate any existing stationary source in violation of such standard, except under a permit to operate with an attached compliance schedule granted by the department pursuant to subdivision b of subsection 8 or under an exemption granted by the president under section 112(c) (2) of the Federal Clean Air Act.
- d. No owner or operator subject to the provisions of this chapter ~~shall~~ may fail to report, revise reports, or report source test results as required under this chapter.

5. **Determination of construction or modification.** Upon written application by an An owner or operator, may submit to the department shall make and administrator a written application for a determination of whether actions taken or intended to be taken by such owner or operator constitute construction or modification or the commencement thereof within the meaning of this section of a source subject to a standard. The department and administrator will, within thirty days of receipt of sufficient information to evaluate an application, notify the owner or operator of its determination. Nothing in this subsection, nor any action taken pursuant to this subsection, shall prevent the department from making such a determination upon its own initiative, nor prevent the department from making any subsequent redetermination or taking any other action allowed by law.
6. **Application for permit to construct.** The owner or operator of any new source to which a standard prescribed under this chapter is applicable shall, prior to the date on which construction or modification is planned to commence, shall apply for and receive a permit to construct as provided in section 33-15-14-02.
7. **Notification of startup.** Any owner or operator of a source which has an initial startup date after the effective date of a standard prescribed under this chapter shall furnish the department written notification as follows:
 - a. A notification of the anticipated date of initial startup of the source not more than sixty days nor less than thirty days prior to such date.
 - b. A notification of the actual date of initial startup of the source within fifteen days after such date.
8. **Source reporting and application for permit to operate.**
 - a. The owner or operator of any existing source, or any new source to which a standard prescribed under this chapter is applicable which had an initial startup date which preceded before the effective date of a standard prescribed under this chapter, shall provide, within ninety days after the effective date, provide the following information in writing to the department:
 - (1) Name and address of the owner or operator.
 - (2) The location of the source.

- (3) The type of hazardous pollutants emitted by the stationary source.
- (4) A brief description of the nature, size, design, and method of operation of the stationary source including the operating design capacity of such source and identifying each point of emission for each hazardous pollutant.
- (5) The average weight per month of the hazardous materials being processed by the source, over the last twelve months preceding the date of the report.
- (6) A description of the existing control equipment for each emission point, including:
 - (a) ~~Primary~~ Each control device ~~or devices~~ for each hazardous pollutant.
 - (b) ~~Secondary control device or devices for each hazardous pollutant.~~
 - (c) Estimated control efficiency (percent) for each control device.
- (7) A statement by the owner or operator of the source as to whether the ~~owner or operator~~ source can comply with the standards ~~prescribed in this chapter~~ within ninety days of the effective date.
 - b. The owner or operator of an existing source unable to operate in compliance with any standard prescribed under this chapter may request the department to grant a permit to operate with an attached compliance schedule requiring compliance with the standard within two years of the effective date of such standard. Any request ~~shall~~ must be in writing and ~~shall~~ must include the following information:
 - (1) A description of the controls to be installed to comply with the standard.
 - (2) A compliance schedule, listing the date each step toward compliance will be reached. The list ~~shall~~ must include as a minimum the following dates:
 - (a) Date by which contracts for emission control systems or process modifications will be awarded, or date by which orders will be issued for the purchase of component parts to accomplish emission control or process modification.

- (b) Date of initiation of onsite construction or installation of emission control equipment or process change.
 - (c) Date by which onsite construction or installation of emission control equipment or process modification is to be completed.
 - (d) Date by which final compliance is to be achieved.
- (3) A description of interim emission control steps which will be taken during the compliance schedule period.
- c. Changes in the information provided under subdivision a ~~shall~~ or subsection 6 must be provided to the department within thirty days after such change, except that if changes will result in modification of the source, the provisions of subsection 6 are applicable.
 - d. The format for reporting under this subsection is included as ~~Appendix~~ appendix A to this chapter. Advice on reporting the status of compliance may be obtained from the department.

9. Permit and compliance schedule.

- a. Based on the information provided in any request under subsection 8, or other information, the department may grant a permit to operate with an attached compliance schedule not exceeding two years from the effective date of such standard.
- b. Such permit will be in writing and will, as a minimum:
 - (1) Identify the stationary source covered.
 - (2) Specify the date upon which the standard is to be met. The permit may be revoked or suspended if the standard is not met by the date specified or if the conditions specified under paragraph 3 are not met.
 - (3) Specify dates by which steps toward compliance are to be taken, and impose such additional conditions as the department determines to be necessary to assure installation of the necessary controls within the compliance schedule period, and to assure protection of the health of persons during such period.
- c. Prior to denying any request for a permit pursuant to this subsection, the department will notify the owner or

operator making such request of the department's intention to issue such denial, together with:

- (1) Notice of the information and findings on which such intended denial is based.
 - (2) Notice of opportunity for such owner or operator to present, within such time limit as the department specifies, additional information or arguments to the department prior to final action on such request.
- d. A final determination to deny any request for a permit under this subsection will be in writing and will set forth the specific grounds on which such denial is based. Such final determination will be made within sixty days after presentation of additional information or arguments, or within sixty days after the final date specified for such presentation, if no presentation is made.
- e. The granting of a permit under this subsection ~~shall~~ does not abrogate the department's authority under section 33-15-01-05, subsection 9 of section 33-15-14-02, and subsection 6 of section 33-15-14-03.

10. Compliance with standards and maintenance requirements.

- a. Compliance with numerical emission limits must be determined by emission tests established in subsection 11 unless otherwise specified in an individual section.
- b. Compliance with design, equipment, work practice, or operational standards must be determined as specified in an individual section.
- c. The owner or operator of each stationary source shall maintain and operate the source, including associated equipment for air pollution control, in a manner consistent with good air pollution control practice for minimizing emissions. Determination of whether acceptable operating and maintenance procedures are being used will be based on information available to the department which may include, but is not limited to, monitoring results, review of operating and maintenance procedures, and inspection of the source.
- d. (1) If, in the administrator and department's judgment, an alternative means of emission limitation will achieve a reduction in emissions of a pollutant from a source at least equivalent to the reduction in emissions of that pollutant from that source achieved under any design, equipment, work practice, or operational standard, the department will publish a notice permitting the use of the alternative means

for purposes of compliance with the standard. The notice will restrict the permission to the sources or categories of sources on which the alternative means will achieve equivalent emission reductions. The notice may condition permission on requirements related to the operation and maintenance of the alternative means.

- (2) Any notice under paragraph 1 shall be published only after notice and an opportunity for a hearing.
- (3) Any person seeking permission under this subsection shall submit, unless otherwise specified in the applicable section, a proposed test plan or the results of testing and monitoring, a description of the procedures followed in testing or monitoring, and a description of pertinent conditions during testing or monitoring.

11. Emission tests and monitoring waiver of emission tests.

a. Emission tests and monitoring shall be conducted and reported as set forth in this chapter and Appendix B to this chapter. If required to do emission testing by an applicable section and unless a waiver of emission testing is obtained under this subsection, the owner or operator shall test emissions from the source:

- (1) Within ninety days after the effective date, for an existing source or a new source which has an initial startup date before the effective date; or
- (2) Within ninety days after initial startup, for a new source which has an initial startup date after the effective date.

b. The owner or operator of a new source subject to this chapter, and otherwise at the request of the department, the owner or operator of an existing source subject to this chapter, shall provide or cause to be provided, emission testing facilities as follows-

- (1) Sampling ports adequate for test methods applicable to such source-
- (2) Safe sampling platform or platforms-
- (3) Safe access to sampling platform or platforms-

(4) Utilities for sampling and testing equipment. The department may require an owner or operator to test emissions from the source at any other time.

- c. The owner or operator shall notify the department of the emission test at least thirty days before the emission tests to allow the department the opportunity to have an observer present during the test.
- d. If required to do emission testing, the owner or operator of each new source and, at the request of the department, the owner or operator of each existing source shall provide emission testing facilities as follows:
- (1) Sampling ports adequate for test methods applicable to each source.
 - (2) Safe sampling platforms.
 - (3) Safe access to sampling platforms.
 - (4) Utilities for sampling and testing equipment.
 - (5) Any other facilities that the department needs to safely and properly test a source.
- e. Each emission test must be conducted under such conditions as the department shall specify based on design and operational characteristics of the source.
- f. Unless otherwise specified in an applicable section, samples must be analyzed and emissions determined within thirty days after each emission test has been completed. The owner or operator shall report the determinations of the emission test to the department by registered letter sent before the close of business on the thirty-first day following the completion of the emission test.
- g. The owner or operator shall retain at the source and make available, upon request, for inspection by the department, for a minimum of two years, records of emission test results and other data needed to determine emissions.
- h. (1) Emission tests must be conducted as set forth in this subsection, the applicable section and appendix B unless the department specifies or approves the use of a reference method with minor changes in methodology, or the department and administrator:
- (a) Approves the use of an alternative method; or

(b) Waives the requirement for emission testing because the owner or operator of a source has demonstrated by other means to the department's satisfaction that the source is in compliance with the standard.

(2) If the department finds reasonable grounds to dispute the results obtained by an alternative method, it may require the use of a reference method. If the results of the reference and alternative methods do not agree, the results obtained by the reference method prevail.

(3) The owner or operator may request approval for the use of an alternative method at any time, except:

(a) For an existing source or a new source that had an initial startup before the effective date, any request for use of an alternative method during the initial emission test must be submitted to the department within thirty days after the effective date, or with the request for a permit with compliance schedule if one is submitted under subsection 8.

(b) For a new source that has an initial startup after the effective date, any request for use of an alternative method during the initial emission test must be submitted to the department no later than with the notification of anticipated startup required under subsection 7.

11- Waiver of emission tests-

a-

i. (1) Emission tests may be waived upon written application to the department if, in its judgment, the source is meeting the standard, or if the source is operating under a permit granted under subsection 9 or has requested such permit.

b- (2) If application for waiver of the emission test is made, such application ~~shall~~ must accompany the information required by subsection 8. The appropriate form is contained in **Appendix appendix A** to this chapter.

e- (3) Approval of any waiver granted pursuant to this subsection ~~shall~~ does not abrogate the department's authority under North Dakota Century Code chapter 23-25 or in any way prohibit the department from

later canceling such waiver. Such cancellation will be made only after notice is given to the owner or operator of the source.

12. Source test and analytical methods- Monitoring requirements.

- a. Methods 101, 102, and 104 in Appendix B to this chapter shall be used for all source tests required under this chapter, unless an equivalent method or an alternative method has been approved by the department. Unless otherwise specified, this subsection applies to each monitoring system required under each section which requires monitoring.
- b. Method 103 in Appendix B to this chapter is hereby approved by the department as an alternative method for sources subject to subdivision a of subsection 3 of section 33-15-13-03 and subdivision b of subsection 3 of section 33-15-13-04. Each owner or operator shall maintain and operate each monitoring system as specified in the applicable section and in a manner consistent with good air pollution control practice for minimizing emissions. Any unavoidable breakdown or malfunction of the monitoring system should be repaired or adjusted as soon as practicable after its occurrence. The department's determination of whether acceptable operating and maintenance procedures are being used will be based on information which may include, but not be limited to, review of operating and maintenance procedures, manufacturer recommendations and specifications, and inspection of the monitoring system.
- c. The department may, after notice to the owner or operator, withdraw approval of an alternative method granted under subdivision a, b, or d. Where the test results using an alternative method do not adequately indicate whether a source is in compliance with a standard, the department may require the use of the reference method or its equivalent. When required by the applicable section, and at any other time the department may require, the owner or operator of a source being monitored shall conduct a performance evaluation of the monitoring system and furnish the department with a copy of a written report of the results within sixty days of the evaluation. Such a performance evaluation must be conducted according to the applicable specifications and procedures described in the applicable section. The owner or operator of the source shall furnish the department with written notification of the date of the performance

evaluation at least thirty days before the evaluation is to begin.

- d. Method 105 in Appendix B to this chapter is hereby approved by the department as an alternative method for sources subject to subdivision b of subsection 3 of section 33-15-13-05. When the effluents from a single source, or from two or more sources subject to the same emission standards, are combined before being released to the atmosphere, the owner or operator shall install a monitoring system on each effluent or on the combined effluent. If two or more sources are not subject to the same emission standards, the owner or operator shall install a separate monitoring system on each effluent, unless otherwise specified. If the applicable standard is a mass emission standard and the effluent from one source is released to the atmosphere through more than one point, the owner or operator shall install a monitoring system at each emission point unless the installation of fewer systems is approved by the department.
- e. The owner or operator of each monitoring system shall reduce the monitoring data as specified in each applicable section. Monitoring data recorded during periods of unavoidable monitoring system breakdowns, repairs, calibration checks, and zero and span adjustments shall not be included in any data average.
- f. The owner or operator shall maintain records of monitoring data, monitoring system calibration checks, and the occurrence and duration of any period during which the monitoring system is malfunctioning or inoperative. These records must be maintained at the source for a minimum of two years and made available, upon request, for inspection by the department.
- g. (1) Monitoring must be conducted as set forth in this subsection and applicable section unless the department:
- (a) Specifies or approves the use of the specified monitoring requirements and procedures with minor changes in methodology; or
 - (b) Approves the use of alternatives to any monitoring requirements or procedures.
- (2) If the department finds reasonable grounds to dispute the results obtained by an alternative monitoring method, the department may require the monitoring requirements and procedures specified in this subsection.

13. Modification.

- a. Except as provided under subdivision d, any physical or operational change to a stationary source which results in an increase in the rate of emission to the atmosphere of a hazardous pollutant to which a standard applies must be considered a modification.
- b. Upon modification, an existing source shall become a new source for each hazardous pollutant for which the rate of emission to the atmosphere increases and to which a standard applies.
- c. Emission rate must be expressed as kilograms per hour or any hazardous pollutant discharged into the atmosphere for which a standard is applicable. The department shall use the following to determine the emission rate:
 - (1) Emission factors as specified in the background information document (BID) for the applicable standard, or in the latest issue of "Compilation of Air Pollutant Emission Factors", environmental protection agency publication number AP-42, or other emission factors determined by the department to be superior to AP-42 emission factors, in cases where use of emission factors demonstrates that the emission rate will clearly increase or clearly not increase as a result of the physical or operational change.
 - (2) Material balances, monitoring data, or manual emission tests in cases where use of emission factors, as referenced in paragraph 1, does not demonstrate to the department's satisfaction that the emission rate will clearly increase or clearly not increase as a result of the physical or operational change, or where an interested person demonstrates to the department's satisfaction that there are reasonable grounds to dispute the result obtained by the department using emission factors. When the emission rate is based on results from manual emission tests or monitoring data, the procedures specified in appendix C of chapter 33-15-12 must be used to determine whether an increase in emission rate has occurred. Tests must be conducted under such conditions as the department shall specify to the owner or operator. At least three test runs must be conducted before and at least three after the physical or operational change. If the department approves, the results of the emission tests required in subsection 11 may be used for the test runs to be conducted before the physical or operational change. All operating parameters which may affect emissions

must be held constant to the maximum degree feasible for all test runs.

d. The following may not, by themselves, be considered modifications under this part:

- (1) Maintenance, repair, and replacement which the department determines to be routine for a source category.
- (2) An increase in production rate of a stationary source, if that increase can be accomplished without a capital expenditure on the stationary source.
- (3) An increase in the hours of operation.
- (4) Any conversion to coal that meets the requirements specified in section 111(a)(8) of the Clean Air Act.
- (5) The relocation or change in ownership of a stationary source. However, such activities must be reported in accordance with subdivision c of subsection 8.

~~13-~~ 14. Availability of information.

- a. Emission data provided to, or otherwise obtained by, the department in accordance with the provisions of this chapter shall be available to the public.
- b. Any records, reports, or information, other than emission data, provided to, or otherwise obtained by, the department in accordance with the provisions of this chapter shall be available to the public, except that upon a showing satisfactory to the department by any person that such records, reports, or information, or particular part thereof (other than emission data), if made public, would divulge methods or processes entitled to protection as trade secrets of such person, the department will consider such records, reports, or information, or particular part thereof, confidential in accordance with the purposes of section 1905 of title 18 of the United States Code, except that such records, reports, or information, or particular part thereof, may be disclosed to other officers, employees, or authorized representatives of the state and federal government concerned with carrying out the provisions of North Dakota Century Code chapter 23-25 or when relevant in any proceeding under North Dakota Century Code chapter 23-25.

~~14-~~ 15. Circumvention. No owner or operator subject to the provisions of this chapter ~~shall~~ may build, erect, install, or use any article, machine, equipment, process, or method, the use of which conceals an emission which would otherwise

constitute a violation of an applicable standard. Such concealment includes, but is not limited to, the use of gaseous diluents to achieve compliance with a visible emissions standard, and the piecemeal carrying out of an operation to avoid coverage by a standard that applies only to operations larger than a specified size.

History: Amended effective February 1, 1982; October 1, 1987.

General Authority: NDCC 23-25-03, 28-32-02

Law Implemented: NDCC 23-25-03

33-15-13-02. Emission standard for asbestos.

1. **Applicability.** The provisions of this section are applicable to those sources specified in ~~subsection~~ subsections 3 through 16.
2. **Definitions.** As used in this section, all terms not defined in this subsection shall have the meaning given them in North Dakota Century Code chapter 23-25, or in subsection 2 of section 33-15-13-01. All terms that are used in this section and are not defined below are given the same meaning as in North Dakota Century Code chapter 23-25 and in section 33-15-13-01.
 - a. "Active waste disposal site" means any disposal site other than an inactive site.
 - b. "Adequately wetted" means sufficiently mixed or coated with amended water, removal encapsulants, or an aqueous solution to prevent dust emissions.
 - c. "Asbestos" means actinolite, amosite, anthophyllite, chrysotile, crocidolite, tremolite the asbestiform varieties of serpentinite (chrysotile), riebeckite (crocidolite), cummingtonite-grunerite, anthophyllite, and actinolite-tremolite.
 - d. "Asbestos-containing waste material" means any waste which that contains commercial asbestos and is generated by a source subject to the provisions of this section, including. This term includes asbestos mill tailings, ~~control device~~ asbestos waste from control devices, friable asbestos waste material, and bags or containers that previously contained commercial asbestos. However, as applied to demolition and renovation operations, this term includes only friable asbestos waste and asbestos waste from control devices.
 - e. "Asbestos material" means asbestos or any material containing asbestos.

- f. "Asbestos mill" means any facility engaged in the conversion of converting, or in any intermediate step in converting, asbestos ore into commercial asbestos. Outside storage of asbestos materials is not considered a part of such facility the asbestos mill.
- g. "Asbestos tailings" means any solid waste that contains asbestos mining and is a product of asbestos mining or milling operations which contains asbestos.
- h. "Asbestos waste from control devices" means any waste material that contains asbestos and is collected by a pollution control device.
- i. "Commercial asbestos" means any variety of asbestos which that is produced by extracting asbestos extracted from asbestos ore.
- ~~i-~~ "Control device asbestos waste" means any asbestos-containing waste material that is collected in a pollution control device.
- j. "Demolition" means the wrecking or taking out of any load-supporting structural member and any related removing or stripping of friable asbestos materials of a facility, together with any related handling operations.
- k. "Visible emissions" means any emissions containing asbestos material that are visually visible without the aid of instruments. This does not include condensed uncombined water vapor.
- l. "Emergency renovation operation" means a renovation operation that was not planned but results from a sudden, unexpected event, and is not a planned renovation. Operations This term includes operations necessitated by nonroutine failures of equipment are included.
- ~~i-~~ m. "Fabricating" means any processing of a manufactured product containing that contains commercial asbestos, with the exception of processing at temporary sites for the construction or restoration of buildings, structures, facilities, or installations.
- n. "Facility" means any institutional, commercial, or industrial structure, installation, or building (excluding apartment buildings having no more than four dwelling units).
- o. "Facility component" means any pipe, duct, boiler, tank, reactor, turbine, or furnace at or in a facility; or any structural member of a facility.

- m- p. "Friable asbestos material" means any material ~~that~~ contains containing more than one percent asbestos by weight and ~~that can be crumbled, pulverized, or reduced to powder, when dry, by that hand pressure or mechanical forces expected to act on the material can crumble, pulverize, or reduce to powder when dry.~~
- n- q. "Inactive waste disposal site" means any disposal site or portion ~~thereof~~ of it where additional asbestos-containing waste material will not be deposited and where the surface is not disturbed by vehicular traffic.
- o- r. "Manufacturing" means the combining of commercial asbestos, or in the case of woven friction products, the combining of textiles containing commercial asbestos, with any other ~~material or~~ materials, including commercial asbestos, and the processing of this combination into a product as specified in subsection 3.
- p- s. "Outside air" means the air outside buildings and structures.
- q- "Particulate asbestos material" means finely divided particles of asbestos material.
- r- t. "Planned renovation operations" means a renovation operation, or a number of such operations, in which the amount of friable asbestos material that will be removed or stripped within a given period of time can be predicted. Operations that are individually Individual nonscheduled operations are included, provided if a number of such operations can be predicted to occur during a given period of time based on operating experience.
- s- "Removing" means taking out friable asbestos materials used to insulate or fireproof any pipe, duct, boiler, tank, reactor, turbine, furnace, or structural member from any building, structure, facility, or installation.
- u. "Remove" means to take out friable asbestos materials from any facility.
- t- v. "Renovation" means the removing or stripping of friable asbestos material used to insulate or fireproof any pipe, duct, boiler, tank, reactor, turbine, furnace, or structural member altering in any way one or more facility components. Operations in which load-supporting structural members are wrecked or taken out are excluded.

- u- w. "Roadways" means surfaces on which motor vehicles travel including, but not limited to. This term includes highways, roads, streets, parking areas, and driveways.
- v- "Stripping" means taking off friable asbestos materials used for insulation or fireproofing from any pipe, duct, boiler, tank, reactor, turbine, furnace, or structural member.
- x. "Strip" means to take off friable asbestos materials from any part of any facility.
- w- y. "Structural member" means any load-supporting member of a facility, such as beams and load-supporting walls; or any non-load-supporting member, such as ceilings and non-load-supporting walls.
- x- "Visible emissions" means any emissions which are visually detectable without the aid of instruments and which contain particulate asbestos material.

3. Emission standard Standard for asbestos mills.

- a- Asbestos mills- There shall be no visible emissions to the outside air from any asbestos mill except as provided in subdivision f-
- b- Roadways- The surfacing of roadways with asbestos tailings or with asbestos-containing waste that is generated by any source subject to subdivision e, d, e, or h is prohibited, except for temporary roadways on an area of asbestos ore deposits. The deposition of asbestos tailings or asbestos-containing waste on roadways covered with snow or ice is considered "surfacing".
- e- Manufacturing- There shall be no visible emissions to the outside air, except as provided in subdivision f, from any of the following operations if they use commercial asbestos or from any building or structure in which such operations are conducted. Each owner or operator of an asbestos mill shall discharge no visible emissions to the outside air from that asbestos mill and use the methods specified by subsection 13 to clean emissions containing asbestos material before they escape to, or are vented to, the outside air.

4. Standard for roadways. No person may surface a roadway with asbestos tailings or asbestos-containing waste material.

5. Standard for manufacturing.

a. Applicability. This section applies to the following manufacturing operations using commercial asbestos.

- (1) The manufacture of cloth, cord, wicks, tubing, tape, twine, rope, thread, yarn, roving, lap, or other textile materials.
- (2) The manufacture of cement products.
- (3) The manufacture of fireproofing and insulating materials.
- (4) The manufacture of friction products.
- (5) The manufacture of paper, millboard, and felt.
- (6) The manufacture of floor tile.
- (7) The manufacture of paints, coatings, caulks, adhesives, and sealants.
- (8) The manufacture of plastics and rubber materials.
- (9) The manufacture of chlorine.
- (10) The manufacture of shotgun shells shell wads.
- (11) The manufacture of asphalt concrete.

d- Demolition and renovation: The requirements of this subdivision shall apply to any owner or operator of a demolition or renovation operation who intends to demolish any institutional, commercial, or industrial building (including apartment buildings having more than four dwelling units), structure, facility, installation, or portion thereof which contains any pipe, duct, boiler, tank, reactor, turbine, furnace, or structural member that is insulated or fireproofed with friable asbestos material, except as provided in paragraph 1, or who intends to renovate any institutional, commercial, or industrial building, structure, facility, installation, or portion thereof where more than eighty meters (262.47 feet) of pipe insulated or fireproofed with friable asbestos material are stripped or removed, or more than fifteen square meters (161.46 square feet) of friable asbestos material used to insulate or fireproof any duct, boiler, tank, reactor,

turbine, furnace, or structural member are stripped or removed.

(1) (a) The owner or operator of a demolition operation is exempted from the requirements of this subdivision, provided, (1) the amount of friable asbestos material in the building or portion thereof to be demolished is less than eighty meters {262.47 feet} used to insulate pipes, and less than fifteen square meters {161.46 square feet} used to insulate or fireproof any duct, boiler, tank, reactor, turbine, furnace, or structural member, and (2) the notification requirements of subparagraph b-

(b) Written notification shall be postmarked or delivered to the department at least twenty days prior to commencement of demolition and shall include the information required by paragraph 2, with the exception of the information required by subparagraphs e, f, g, h, and i of paragraph 2, and shall state the measured or estimated amount of friable asbestos material used for insulation and fireproofing which is present. Techniques of estimation shall be explained.

(2) Written notice of intention to demolish or renovate shall be provided to the department by the owner or operator of the demolition or renovation operation. The notice shall be postmarked or delivered to the department at least ten days prior to commencement of demolition, or as early as possible prior to commencement of emergency demolition subject to paragraph 6, and as early as possible prior to commencement of renovation. Such notice shall include the following information:

(a) Name of owner or operator.

(b) Address of owner or operator.

(c) Description of the building, structure, facility, or installation to be demolished or renovated, including the size, age, and prior use of the

structure, and the approximate amount of friable asbestos material used for insulation and fireproofing.

(d) Address or location of the building, structure, facility, or installation.

(e) Scheduled starting and completion dates of demolition or renovation.

(f) Nature of planned demolition or renovation and method or methods to be employed.

(g) Procedures to be employed to meet the requirements of this subdivision and subdivision j.

(h) The name and address or location of the waste disposal site where the friable asbestos waste will be deposited.

(i) Name, title, and authority of the state or local governmental representative who has ordered a demolition which is subject to paragraph 6.

(3) (a) For purposes of determining whether a planned renovating operation constitutes a renovation within the meaning of this subdivision, the amount of friable asbestos material to be removed or stripped shall be:

{1} For planned renovating operations involving individually nonscheduled operations, the additive amount of friable asbestos material that can be predicted will be removed or stripped at a source over the maximum period of time for which a prediction can be made. The period shall be not less than thirty days and not longer than one year.

{2} For each planned renovating operation not covered by item 1 of this subparagraph, the total amount of friable asbestos material that can be predicted will be removed or stripped at a source.

(b) For purposes of determining whether an emergency renovating operation constitutes a renovation within the meaning of this subdivision, the amount of friable asbestos material to be removed or stripped shall be the total amount of friable asbestos material that will be removed or stripped as a result of the sudden, unexpected event that necessitated the renovation.

(4) The following procedures shall be used to prevent emissions of particulate asbestos material to outside air:

(a) Friable asbestos materials, used to insulate or fireproof any pipe, duct, boiler, tank, reactor, turbine, furnace, or structural member, shall be removed from any building, structure, facility, or installation subject to this subdivision. Such removal shall occur before wrecking or dismantling of any portion of such building, structure, facility, or installation that would break up the friable asbestos materials and before wrecking or dismantling of any other portion of such building, structure, facility, or installation that would preclude access to such materials for subsequent removal. Removal of friable asbestos materials used for insulation or fireproofing of any pipe, duct, or structural member which are encased in concrete or other similar structural material is not required prior to demolition, but such material shall be adequately wetted whenever exposed during demolition.

(b) Friable asbestos materials used to insulate or fireproof pipes, ducts, boilers, tanks, reactors, turbines, furnaces, or structural members shall be adequately wetted during stripping, except as provided in subparagraph d, f, or g.

(c) Pipes, ducts, boilers, tanks, reactors, turbines, furnaces, or structural members that are insulated or fireproofed with friable asbestos materials may be taken out of any

building, structure, facility, or installation subject to this subdivision as units or in sections provided the friable asbestos materials exposed during cutting or disjoints are adequately wetted during the cutting or disjoints operation. Such units shall not be dropped or thrown to the ground, but shall be carefully lowered to ground level.

(d) The stripping of friable asbestos materials used to insulate or fireproof any pipe, duct, boiler, tank, reactor, turbine, furnace, or structural member that has been removed as a unit or in sections as provided in subparagraph e shall be performed in accordance with subparagraph b. Rather than comply with the wetting requirement, a local exhaust ventilation and collection system may be used to prevent emissions to the outside air. Such local exhaust ventilation systems shall be designed and operated to capture the asbestos particulate matter produced by the stripping of friable asbestos material. There shall be no visible emissions to the outside air from such local exhaust ventilation and collection systems except as provided in subdivision f.

(e) All friable asbestos materials that have been removed or stripped shall be adequately wetted to ensure that such materials remain wet during all remaining stages of demolition or renovation and related handling operations. Such materials shall not be dropped or thrown to the ground or a lower floor. Such materials that have been removed or stripped more than fifty feet {15.24 meters} above ground level, except those materials removed as units or in sections, shall be transported to the ground via dust-tight chutes or containers.

(f) Except as specified below, the wetting requirements of this subdivision are suspended when the temperature at the point of wetting is below zero degrees Celsius {32 degrees Fahrenheit}. When

friable asbestos materials are not wetted due to freezing temperatures, such materials on pipes, ducts, boilers, tanks, reactors, turbines, furnaces, or structural members shall, to the maximum extent possible, be removed as units or in sections prior to wrecking. In no case shall the requirements of subparagraph d or e be suspended due to freezing temperatures.

(g) For renovation operations, local exhaust ventilation and collection systems may be used, instead of wetting as specified in subparagraph b, to prevent emissions of particulate asbestos material to outside air when damage to equipment resulting from the wetting would be unavoidable. Upon request and supply of adequate information, the department will determine whether damage to equipment resulting from wetting to comply with the provisions of this subdivision would be unavoidable. Such local exhaust ventilation systems shall be designed and operated to capture the asbestos particulate matter produced by the stripping and removal of friable asbestos material. There shall be no visible emissions to the outside air from such local exhaust ventilation and collection systems, except as provided in subdivision f.

(5) Sources subject to this subdivision are exempt from the requirements of subdivision a of subsection 4 of section 33-15-13-01, and subsections 6 and 7 of section 33-15-13-01.

(6) The demolition of a building, structure, facility, or installation, pursuant to an order of an authorized representative of a state or local governmental agency, issued because that building is structurally unsound and in danger of imminent collapse is exempt from all but the following requirements of this subdivision:

(a) The notification requirements specified by paragraph 1.

(b) The requirements on stripping of friable asbestos materials from previously removed units or sections as specified in subparagraph d of paragraph 4.

(c) The wetting, as specified by subparagraph e of paragraph 4, of friable asbestos materials that have been removed or stripped.

(d) The portion of the structure being demolished that contains friable asbestos materials shall be adequately wetted during the wrecking operation.

e- Spraying. There shall be no visible emissions to the outside air from the spray-on application of materials containing more than one percent asbestos, on a dry weight basis, used to insulate or fireproof equipment and machinery, except as provided in subdivision f. Spray-on materials used to insulate or fireproof buildings, structures, pipes, and conduits shall contain less than one percent asbestos on a dry weight basis.

(1) Sources subject to this subdivision are exempt from the requirements of subdivision a of subsection 4 of section 33-15-13-01 and subsections 6 and 7 of section 33-15-13-01.

(2) Any owner or operator who intends to spray asbestos materials which contain more than one percent asbestos on a dry weight basis to insulate or fireproof equipment and machinery shall report such intention to the department at least twenty days prior to the commencement of the spraying operation. Such report shall include the following information:

(a) Name of owner or operator.

(b) Address of owner or operator.

(c) Location of spraying operation.

(d) Procedures to be followed to meet the requirements of this subdivision.

f. Rather than meet the no-visible-emission requirements as specified by subdivisions a, e, d, e, h, j, and k, an owner or operator may

elect to use the methods specified by subsection 4 to clean emissions containing particulate asbestos material before such emissions escape to, or are vented to, the outside air.

- g- Where the presence of uncombined water is the sole reason for failure to meet the no-visible-emission requirement of subdivisions a, c, d, e, h, j, and k, such failure shall not be a violation of such emission requirements.
- h- Fabricating. There shall be no visible emissions to the outside air, except as provided in subdivision f, from any of the following operations if they use commercial asbestos or from any building or structure in which such operations are conducted:
 - (1) The fabrication of cement building products.
 - (2) The fabrication of friction products, except those operations that primarily install asbestos friction materials on motor vehicles.
 - (3) The fabrication of cement or silicate board for ventilation hoods, ovens, electrical panels, laboratory furniture, bulkheads, partitions, and ceilings for marine construction, and flow control devices for the molten metal industry.
- i- Insulating. Molded insulating materials which are friable and wet-applied insulating materials which are friable after drying, installed after February 9, 1976, shall contain no commercial asbestos. The provisions of this subdivision do not apply to insulating materials which are spray applied, such materials are regulated under subdivision e.
- j- Waste disposal for manufacturing, fabricating, demolition, renovation, and spraying operations. The owner or operator of any source covered under the provisions of subdivision c, d, e, or h shall meet the following standards:
 - (1) There shall be no visible emissions to the outside air, except as provided in paragraph 3, during the collection, processing, including incineration, packaging, transporting, or deposition of

any asbestos-containing waste material which is generated by such source-

{2} All asbestos-containing waste material shall be deposited at waste disposal sites which are operated in accordance with the provisions of subsection 6-

{3} Rather than meet the requirement of paragraph 1, an owner or operator may elect to use either of the disposal methods specified under subparagraphs a and b, or an alternative disposal method which has received prior approval by the department-

{a} Treatment of asbestos-containing waste material with water-

{1} Control device asbestos waste shall be thoroughly mixed with water into a slurry and other asbestos-containing waste material shall be adequately wetted. There shall be no visible emissions to the outside air from the collection, mixing, and wetting operation except as provided in subdivision f-

{2} After wetting, all asbestos-containing waste material shall be sealed into leak-tight containers while wet, and such containers shall be deposited at waste disposal sites which are operated in accordance with the provisions of subsection 6-

{3} The containers specified under item 2 of this subparagraph shall be labeled with a warning label that states-

b. Standard. Each owner or operator of any of the manufacturing operations to which this section applies shall either:

(1) Discharge no visible emissions to the outside air from these operations or from any building or structure in which they are conducted; or

(2) Use the methods specified by subsection 13 to clean emissions containing asbestos material from these

operations before they escape to, or are vented to, the outside air.

6. Standard for demolition and renovation.

a. Applicability. The requirements of subdivisions b and c apply to each owner or operator of an asbestos demolition or renovation operation, as follows:

(1) For any demolition or renovation project involving the stripping or removal of friable asbestos materials, all the procedure requirements of subdivision c apply, except for ordered demolitions as provided in paragraph 4.

(2) If there are any friable asbestos materials present in a demolition project, all the notification requirements of subdivision b apply.

(3) If at least one hundred sixty square feet [14.9 square meters] of friable asbestos material are stripped or removed at a facility being renovated, all the notification requirements of subdivision b apply. The quantity of asbestos must be calculated under the conditions specified in subparagraphs a and b.

(a) To determine whether this paragraph applies to planned renovation operations involving individual nonscheduled operations, predict the additive amount of friable asbestos material to be removed or stripped over the maximum period of time a prediction can be made, not to exceed one year.

(b) The total amount of asbestos present in a facility must be determined by adding the total square feet of surface area to the equivalent square feet of pipe wrap. The equivalent square feet of pipe wrap must be calculated using the following formula: $ft^2 = 3.1416 \times d \times \text{linear feet of pipe}$ where:

d = outside diameter of pipe and wrap
in feet

(c) To determine whether this paragraph applies to emergency renovation operations, estimate the amount of friable asbestos materials to be removed or stripped as a result of the sudden unexpected event that necessitated the renovation.

(4) If the facility is being demolished under an order of a state or local government agency, issued because the facility is structurally unsound and in danger of imminent collapse, only the requirements of subdivision b and paragraphs 4, 5, 6, and 7 of subdivision c apply.

(5) Owners or operators of demolition or renovation operations are exempt from the requirements of subdivision a of subsection 4, subsection 6, and subsection 7 of section 33-15-13-01.

b. Notification requirements. Each owner or operator to which this section applies shall:

(1) Provide the department with written notice of the intention to demolish or renovate.

(2) Postmark or deliver the notice as follows:

(a) At least ten days before demolition begins, except as provided in subparagraph b.

(b) As early as possible before demolition begins if the operation is described in paragraph 4 of subdivision a.

(c) At least ten days before renovation begins. When necessary, the department may accept a telephone notification followed by the written notice.

(d) As soon as practical for emergency renovation operations.

(3) Include the following information on the notice:

(a) Name and address of owner or operator.

(b) Description of the facility being demolished or renovated, including the size, age, and prior use of the facility.

(c) Estimate of the approximate amount of friable asbestos material present in the facility in terms of square feet.

(d) Location of the facility being demolished or renovated.

(e) Scheduled starting and completion dates of demolition or renovation.

- (f) Nature of planned demolition or renovation and methods to be used.
 - (g) Procedures to be used to comply with the requirements of this section.
 - (h) The name and location of the waste disposal site where the friable asbestos waste will be deposited.
 - (i) For facilities described in paragraph 4 of subdivision a, the name, title, and authority of state or local governmental representative who has ordered the demolition.
- c. Procedures for asbestos emission control. Each owner or operator to whom this subsection applies shall comply with the following procedures to prevent visible emissions of asbestos material outside the work area:
- (1) Remove friable asbestos materials from a facility being demolished or renovated before any wrecking or dismantling that would break up the materials or preclude access to the materials for subsequent removal. However, friable asbestos materials need not be removed before demolition if:
 - (a) They are on a facility component that is encased in concrete or other similar material; and
 - (b) These materials are adequately wetted whenever exposed during demolition.
 - (2) When a facility component covered or coated with friable asbestos materials is being taken out of the facility as units or in sections:
 - (a) Adequately wet any friable asbestos materials exposed during cutting or disjoining operations; and
 - (b) Carefully lower the units or sections to ground level, not dropping them or throwing them.
 - (3) Adequately wet friable asbestos materials when they are being stripped from facility components before the members are removed from the facility. In renovation operations, wetting that would unavoidably damage equipment is not required if the owner or operator:
 - (a) Asks the department to determine whether wetting to comply with this paragraph would unavoidably

damage equipment, and, before beginning to strip, supplies the department with adequate information to make this determination; and

- (b) When the department does determine that equipment damage would be unavoidable, uses a local exhaust ventilation and collection system designed and operated to capture the asbestos material produced by the stripping and removal of the friable asbestos materials. The system must exhibit no visible emissions to the outside air or be designed and operated in accordance with the requirements in subsection 13.
- (4) After a facility component has been taken out of the facility as units or in sections, either:

 - (a) Adequately wet friable asbestos materials during stripping; or
 - (b) Use a local exhaust ventilation and collection system designed and operated to capture the asbestos material produced by the stripping. The system must exhibit no visible emissions to the outside air or be designed and operated in accordance with the requirements in subsection 13.
- (5) For friable asbestos materials that have been removed or stripped:

 - (a) Adequately wet the materials to ensure that they remain wet until they are collected for disposal in accordance with subsection 11;
 - (b) Carefully lower the materials to the ground or a lower floor, not dropping or throwing them; and
 - (c) Transport the materials to the ground via dusttight chutes or containers if they have been removed or stripped more than fifty feet [15.24 meters] above ground level and were not removed as units or in sections.
- (6) When the temperature at the point of wetting is below zero degrees Celsius [32 degrees Fahrenheit]:

 - (a) Comply with the requirements of paragraphs 4 and 5. The owner or operator need not comply with the other wetting requirements in this section; and

(b) Remove facility components coated or covered with friable asbestos materials as units or in sections to the maximum extent possible.

(7) For facilities described in paragraph 4 of subdivision a, adequately wet the portion of the facility that contains friable asbestos materials during the wrecking operation.

(8) When a friable asbestos demolition or renovation project is conducted in the ambient air, the owner or operator shall designate the boundaries of the work area by appropriate means.

7. Standard for spraying. The owner or operator of an operation in which asbestos-containing materials are spray applied shall comply with the following requirements:

a. Use materials that contain one percent asbestos or less on a dry weight basis for spray-on application on buildings, structures, pipes, and conduits, except as provided in subdivision c.

b. For spray-on application of materials that contain more than one percent asbestos on a dry weight basis on equipment and machinery, except as provided in subdivision c:

(1) Notify the department at least twenty days before beginning the spraying operation. Include the following information in the notice:

(a) Name and address of owner or operator.

(b) Location of spraying operation.

(c) Procedures to be followed to meet the requirements of this paragraph.

(2) Discharge no visible emissions to the outside air from the spray-on application of the asbestos-containing material or use the methods specified by subsection 13 to clean emissions containing asbestos material before they escape to, or are vented to, the outside air.

c. The requirements of paragraphs a and b of this section do not apply to the spray-on application of materials where the asbestos fibers in the materials are encapsulated with a bituminous or resinous binder during spraying and the materials are not friable after drying.

Owners and operators of sources subject to this subsection are exempt from the requirements of subdivision a of subsection 4 and subsections 6 and 7 of section 33-15-13-01.

8. Standard for fabricating.

a. Applicability. This subsection applies to the following fabricating operations using commercial asbestos:

- (1) The fabrication of cement building products.
- (2) The fabrication of friction products, except those operations that primarily install asbestos friction materials on motor vehicles.
- (3) The fabrication of cement or silicate board for ventilation hoods; ovens; electrical panels; laboratory furniture; bulkheads, partitions, and ceilings for marine construction; and flow control devices for the molten metal industry.

b. Standard. Each owner or operator of any of the fabricating operations to which this subsection applies shall either:

- (1) Discharge no visible emissions to the outside air from any of the operations or from any building or structure in which they are conducted; or
- (2) Use the methods specified by subsection 13 to clean emissions containing asbestos material before they escape to, or are vented to, the outside air.

9. Standard for insulating materials. After October 1, 1987, no owner or operator of a facility may install or reinstall on a facility component any insulating materials that contain commercial asbestos if the materials are either molded and friable or wet-applied and friable after drying. The provisions of this subsection do not apply to spray-applied insulating materials regulated under subsection 7.

10. Standard for waste disposal for asbestos mills. Each owner or operator of any source covered under the provisions of subsection 3 shall:

- a. Deposit all asbestos-containing waste material at department approved waste disposal sites operated in accordance with the provisions of subsection 15.
- b. Discharge no visible emissions to the outside air from the transfer of asbestos waste from control devices to the tailings conveyor, or use the methods specified by

subsection 13 to clean emissions containing asbestos material before they escape to, or are vented to, the outside air. Dispose of the asbestos waste from control devices in accordance with subdivision b of subsection 11 or subdivision c.

c. Discharge no visible emissions to the outside air during the collection, processing, packaging, transporting, or deposition of any asbestos-containing waste material, or use one of the disposal methods as follows:

(1) Use a wetting agent as follows:

(a) Adequately mix all asbestos-containing waste material with a wetting agent recommended by the manufacturer of the agent to effectively wet dust and tailings, before depositing the material at a waste disposal site. Use the agent as recommended for the particular dust by the manufacturer of the agent.

(b) Discharge no visible emissions to the outside air from the wetting operation or use the methods specified by subsection 13 to clean emissions containing asbestos material before they escape to, or are vented to, the outside air.

(2) Use an alternative disposal method that has received prior approval by the department and administrator.

11. Standard for waste disposal for manufacturing, demolition, renovation, spraying, and fabricating operations.

a. Deposit all asbestos-containing waste material at department approved waste disposal sites operated in accordance with the provisions of subsection 15.

b. Discharge no visible emissions to the outside air during the collection processing (including incineration), packaging, transporting, or deposition of any asbestos-containing waste material generated by the source, or use one of the disposal methods.

(1) Treat asbestos-containing waste material with water:

(a) Mix asbestos waste from control devices with water to form a slurry; adequately wet other asbestos-containing waste material.

(b) Discharge no visible emissions to the outside air from collection, mixing, and wetting operations, or use the methods specified by

subsection 13 to clean emissions containing asbestos material before they escape to, or are vented to, the outside air.

- (c) After wetting, seal all asbestos-containing waste material in leaktight containers while wet.
- (d) Label the containers specified in subparagraph c as follows:

CAUTION

Contains Asbestos
Avoid Opening or Breaking Container
Breathing Asbestos is Hazardous
to Your Health

Alternatively, a warning label use warning labels specified by occupational safety and health standards of the department of labor, occupational safety and health administration (OSHA) under 29 CFR ~~1910.93a(g)(2)(ii)~~ may be used 1910.1001(g)(2)(ii).

~~(b) Processing of asbestos-containing waste material into nonfriable forms-~~

~~{1} All asbestos-containing waste material shall be formed into nonfriable pellets or other shapes and deposited at waste disposal sites which are operated in accordance with the provisions of subsection 6-~~

~~{2} There shall be no visible emissions to the outside air from the collection and processing of asbestos-containing waste material, except as specified in subdivision f-~~

~~(4) For the purposes of this subdivision, the term all asbestos-containing waste material as applied to demolition and renovation operations covered by subdivision d includes only friable asbestos waste and control device asbestos waste-~~

~~k- Waste disposal for asbestos mills- The owner or operator of any source covered under the~~

provisions of subdivision a shall meet the following standard:-

- (1) There shall be no visible emissions to the outside air, except as provided in paragraph 3, during the collection, processing, packaging, transporting, or deposition of any asbestos-containing waste material which is generated by such source.
- (2) All asbestos-containing waste material shall be deposited at waste disposal sites which are operated in accordance with the provisions of subsection 6.
- (3) Rather than meet the requirement of paragraph 1, an owner or operator may elect to meet the following requirements in subparagraphs a and b, or use an alternative disposal method which has received prior approval by the department.
 - (a) There shall be no visible emissions to the outside air from the transfer of control device asbestos waste to the tailings conveyor, except as provided in subdivision f. Such waste shall be subsequently processed either as specified in subparagraph b or as specified in paragraph 3 of subdivision j.
 - (b) All asbestos-containing waste material shall be adequately mixed, with a wetting agent recommended by the manufacturer of the agent to effectively wet dust and tailings, prior to deposition at a waste disposal site. Such agent shall be used as recommended for the particular dust by the manufacturer of the agent. There shall be no discharge of visible emissions to the outside air from the wetting operation except as specified in subdivision f. Wetting may be suspended when the ambient temperature at the waste disposal site is less than minus nine and one-half degrees Celsius [~~circa~~ 15 degrees Fahrenheit]. The ambient air temperature shall be determined by an appropriate measurement method with an accuracy of \pm one degree Celsius [\pm 2 degrees Fahrenheit] and recorded at

least at hourly intervals during the period that the operation of the wetting system is suspended. Records of such temperature measurements shall be retained at the source for a minimum of two years and made available for inspection by the department.

- i. The owner of any inactive waste disposal site, which was operated by sources covered under subdivision a, e, or h and where asbestos-containing waste material produced by such sources was deposited, shall meet the following standards:
 - (1) There shall be no visible emissions to the outside air from an inactive waste disposal site subject to this division, except as provided in paragraph 5.
 - (2) Warning signs shall be displayed at all entrances, and along the property line of the site or along the perimeter of the sections of the site where asbestos-containing waste material was deposited, at intervals of one hundred meters {328.08 feet} or less, except as specified in paragraph 4. Signs shall be posted in such a manner and location that a person may easily read the legend. The warning signs required by this subdivision shall conform to the requirements of twenty inches by fourteen inches {50.8 centimeters by 35.56 centimeters} upright format signs specified in 29 CFR 1910.145(d)(4) and this subdivision. The signs shall display the following legend in the lower panel, with letter sizes and styles of a visibility at least equal to those specified in this subdivision.

LEGEND

ASBESTOS WASTE DISPOSAL SITE

Do Not Create Dust

Breathing Asbestos is Hazardous
to Your Health

Notation

One Inch Sans Serif, Gothic or Block

Three-fourths Inch Sans Serif, Gothic or Block

Fourteen Point Gothic

Spacing between lines shall be at least equal to the height of the upper of the two lines.

- (3) The perimeter of the site shall be fenced in a manner adequate to deter access by the general public, except as specified in paragraph 4.
- (4) Warning signs and fencing are not required where the requirements of subparagraph a or b of paragraph 5 are met, or where a natural barrier adequately deters access by the general public. Upon request and supply of appropriate information, the department will determine whether a fence or a natural barrier adequately deters access to the general public.
- (5) Rather than meet the requirement of paragraph 1, an owner may elect to meet the requirements of this paragraph, or use an alternative control method for emissions from inactive waste disposal sites which has received prior approval by the department.
- (a) The asbestos-containing waste material shall be covered with at least fifteen centimeters (5.91 inches) of compacted non-asbestos-containing material, and a cover of vegetation shall be grown and maintained on the area adequate to prevent exposure of the asbestos-containing waste material, or

(b) The asbestos-containing waste material shall be covered with at least sixty centimeters {23.62 inches} of compacted non-asbestos-containing material and maintained to prevent exposure of the asbestos-containing waste, or

(c) For inactive waste disposal sites for asbestos tailings, a resinous or petroleum-based dust suppression agent which effectively binds dust and controls wind erosion shall be applied. Such agent shall be used as recommended for the particular asbestos tailings by the dust suppression agent manufacturer. Other equally effective dust suppression agents may be used upon prior approval by the department. For purposes of this subdivision, waste crankcase oil is not considered a dust suppression agent.

4. Air-cleaning: If air-cleaning is elected, as permitted by subdivision f of subsection 3 and subparagraph d of paragraph 4 of subdivision d of subsection 3, the requirements of this subsection must be met:

a. Fabric filter collection devices must be used, except as noted in subdivisions b and c. Such devices must be operated at a pressure drop of no more than four inches {10.16 centimeters} water gauge, as measured across the filter fabric. The airflow permeability, as determined by A.S.T.M. Method D737-69, must not exceed thirty cubic feet {0.85 cubic meter} per minute per square foot {0.09 square meter} for woven fabrics or thirty-five cubic feet {0.99 cubic meter} per minute per square foot {0.09 square meter} for felted fabrics, except that forty cubic feet {1.13 cubic meters} per minute per square foot {0.09 square meter} for woven and forty-five cubic feet {1.27 cubic meters} per minute per square foot {0.09 square meter} for felted fabrics is allowed for filtering air from asbestos ore dryers. Each square yard {0.84 square meter} of felted fabric must weigh at least fourteen ounces {396.89 grams} and be at least one-sixteenth inch {1.588 millimeters} thick throughout. Synthetic fabrics must not contain fill yarn other than that which is spun.

b. If the use of fabric filters creates a fire or explosion hazard, the department may authorize

the use of wet collectors designed to operate with a unit contacting energy of at least forty inches {101.6 centimeters} water gauge pressure.

e- The department may authorize the use of filtering equipment other than that described in subdivisions a and b if the owner or operator demonstrates to the satisfaction of the department that the filtering of particulate asbestos material is equivalent to that of the described equipment.

d- All air-cleaning equipment authorized by this subsection must be properly installed, used, operated, and maintained. Bypass devices may be used only during upset or emergency conditions and then only for so long as it takes to shut down the operation generating the particulate asbestos material.

5- Reporting. The owner or operator of any existing source to which this section is applicable shall, within ninety days after February 9, 1976, provide the following information to the department.

a- A description of the emission control equipment used for each process.

b- If a fabric filter device is used to control emissions, the pressure drop across the fabric filter in inches {centimeters} water gauge.

(1) If the fabric filter device utilizes a woven fabric the airflow permeability in cubic feet {meters} per minute per square foot {meter}, and, if the fabric is synthetic, indicate whether the fill yarn is spun or not spun.

(2) If the fabric filter device utilizes a felted fabric, the density in ounces {grams} per square yard {meter}, the minimum thickness in inches {millimeters}, and the airflow permeability in cubic feet {meters} per minute per square foot {meter}.

e- For sources subject to subdivisions j and k of subsection 3.

(1) A brief description of each process that generates asbestos-containing waste material.

- (2) The average weight of asbestos-containing waste material disposed of, measured in kilograms per day.
 - (3) The emission control methods used in all stages of waste disposal.
 - (4) The type of disposal site or incineration site used for ultimate disposal, the name of the site operator, and the name and location of the disposal site.
- d. For sources subject to subdivision i of subsection 3.
- (1) A brief description of the site.
 - (2) The method or methods used to comply with the standard, or alternative procedures to be used.
- e. Such information shall accompany the information required by subsection 8 of section 33-15-13-01. The information described in this subsection shall be reported using the format of Appendix A of this chapter.
6. Waste disposal sites. In order to be an acceptable site for disposal of asbestos-containing waste material under subdivisions j and k of subsection 3, an active waste disposal site shall meet the requirements of this subsection.
- a. There shall be no visible emissions to the outside air from any active waste disposal site where asbestos-containing waste material has been deposited, except as provided in subdivision e.
 - b. Warning signs shall be displayed at all entrances, and along the property line of the site or along the perimeter of the sections of the site where asbestos-containing waste material is deposited, at intervals of one hundred meters [circa 328.8 feet] or less except as specified in subdivision d. Signs shall be posted in such a manner and location that a person may easily read the legend. The warning signs required by this subdivision shall conform to the requirements of twenty inches by fourteen inches [50.8 centimeters by 35.56 centimeters] upright format signs specified in 29 C.F.R. 1910.145(d)(4) and this subdivision.

The signs shall display the following legend in the lower panel, with letter sizes and styles of a visibility at least equal to those specified in this subdivision.

LEGEND

ASBESTOS WASTE DISPOSAL SITE

Do Not Create Dust

Breathing Asbestos
is Hazardous to Your Health

Notation

One Inch Sans Serif, Gothic or Block

Three-fourths Inch Sans Serif, Gothic or Block

Fourteen Point Gothic

Spacing between lines shall be at least equal to the height of the upper of the two lines.

- e- The perimeter of the disposal site shall be fenced in order to adequately deter access to the general public except as specified in subdivision d-
- d- Warning signs and fencing are not required where the requirements of paragraph 1 of subdivision e are met, or where a natural barrier adequately deters access to the general public. Upon request and supply of appropriate information, the department will determine whether a fence or a natural barrier adequately deters access to the general public.
- e- Rather than meet the requirements of subdivision a, an owner or operator may elect to meet the requirements of paragraph 1 or 2, or may use an alternative control method for emissions from active waste disposal sites which has received prior approval by the department.
- (1) At the end of each operating day, or at least once every twenty-four-hour period while the site is in continuous operation, the asbestos-containing waste material which was deposited at the site during the operating day or previous twenty-four-hour period shall be covered with at least

fifteen centimeters [5-9] inches] of compacted non-asbestos-containing material.

(2) At the end of each operating day, or at least once every twenty-four-hour period while the disposal site is in continuous operation, the asbestos-containing waste material which was deposited at the site during the operating day or previous twenty-four-hour period shall be covered with a resinous or petroleum-based dust suppression agent which effectively binds dust and controls wind erosion. Such agent shall be used as recommended for the particular dust by the dust suppression agent manufacturer. Other equally effective dust suppression agents may be used upon prior approval by the department. For purposes of this subdivision, waste crankcase oil is not considered a dust suppression agent.

(2) Process asbestos-containing waste material into nonfriable forms:

(a) Form all asbestos-containing waste material into nonfriable pellets or other shapes.

(b) Discharge no visible emissions to the outside air from collection and processing operations, or use the methods specified by subsection 13 to clean emissions containing asbestos material before they escape to, or are vented to, the outside air.

(3) Use an alternative disposal method that has received prior approval by the department and administrator.

12. Standard for inactive waste disposal sites for asbestos mills and manufacturing and fabricating operations. Each owner or operator of any inactive waste disposal site that was operated by sources covered under subsections 3, 5, or 8 and received deposits of asbestos-containing waste material generated by the sources, shall:

a. Comply with one of the following:

(1) Either discharge no visible emissions to the outside air from an inactive waste disposal site subject to this subsection;

(2) Cover the asbestos-containing waste material with at least fifteen centimeters [6 inches] of compacted non-asbestos-containing material, and grow and

maintain a cover of vegetation on the area adequate to prevent exposure of the asbestos-containing waste material;

(3) Cover the asbestos-containing waste material with at least sixty centimeters [2 feet] of compacted non-asbestos-containing material, and maintain it to prevent exposure of the asbestos-containing waste; or

(4) For inactive waste disposal sites for asbestos tailings, apply a resinous or petroleum-based dust suppression agent that effectively binds dust and controls wind erosion. Use the agent as recommended for the particular asbestos tailings by the manufacturer of the dust suppression agent. Obtain prior approval of the department to use other equally effective dust suppression agents. For purposes of this paragraph, waste crankcase oil is not considered a dust suppression agent.

b. Unless a natural barrier adequately deters access by the general public, install and maintain warning signs and fencing as follows, or comply with paragraph 2 or 3 of subdivision a.

(1) Display warning signs at all entrances and at intervals of three hundred twenty-eight feet [100 meters] or less along the property line of the site or along the perimeter of the sections of the site where asbestos-containing waste material was deposited. The warning signs must:

(a) Be posted in such a manner and location that a person can easily read the legend.

(b) Conform to the requirements for fifty-one centimeters by thirty-six centimeters [20 inches by 14 inches] upright format signs specified in 29 CFR 1910.145(d)(4) and this subdivision.

(c) Display the following legend in the lower panel with letter sizes and styles of a visibility at least equal to those specified in this paragraph.

<u>Legend</u>	<u>Notation</u>
Asbestos Waste Disposal Site	2.5 cm [1 inch] Sans Serif, Gothic, or Block
Do Not Create Dust	1.9 cm [3/4 inch] Sans Serif,

Spacing between any two lines must be at least equal to the height of the upper two lines.

(2) Fence the perimeter of the site in a manner adequate to deter access by the general public.

(3) Upon request and supply of appropriate information, the department will determine whether a fence or a natural barrier adequately deters access by the general public.

c. The owner or operator may use an alternative control method that has received prior approval of the department and administrator rather than comply with the requirements of subdivision a or b.

13. Air-cleaning.

a. The owner or operator who elects to use air-cleaning, as permitted in subsections 3, 5, 6, 7, 9, 10, and 11 shall:

(1) Use fabric filter collection devices except as noted in subdivision b, doing all of the following:

(a) Operating the fabric filter collection devices at a pressure drop of no more than .995 kilopascal [4 inches water gauge], as measured across the filter fabric.

(b) Ensuring that the airflow permeability, as determined by A.S.T.M. method D737-75, does not exceed nine $m^3/min/m^2$ [30 $ft^3/min/ft^2$] for woven fabrics or eleven $m^3/min/m^2$ [35 $ft^3/min/ft^2$] for felted fabrics, except that twelve $m^3/min/m^2$ [40 $ft^3/min/ft^2$] for woven and fourteen $m^3/min/m^2$ [45 $ft^3/min/ft^2$] for felted fabrics is allowed for filtering air from asbestos ore dryers.

(c) Ensuring that felted fabric weighs at least four hundred seventy-five grams per square meter [14 ounces per square yard] and is at least 1.6 millimeters [one-sixteenth inch] thick throughout.

(d) Avoiding the use of synthetic fabrics that contain fill yarn other than that which is spun.

(2) Properly install, use, operate, and maintain all air-cleaning equipment authorized by this subsection. Bypass devices may be used only during upset or emergency conditions and then only for so long as it takes to shut down the operation generating the asbestos material.

b. There are the following exceptions to paragraph 1 of subdivision a.

(1) If the use of fabric creates a fire or explosion hazard, the department may authorize as a substitute the use of wet collectors designed to operate with a unit contacting energy of at least 9.95 kilopascals [40 inches water gauge pressure].

(2) The department and administrator may authorize the use of filtering equipment other than that described in paragraph 1 of subdivision a and paragraph 1 of subdivision b if the owner or operator demonstrates to the administrator and department's satisfaction that it is equivalent to the described equipment in filtering asbestos material.

14. Reporting.

a. Within ninety days after February 9, 1976, each owner or operator of any existing source to which this section applies shall provide the following information to the department.

(1) A description of the emission control equipment used for each process.

(2) If a fabric filter device is used to control emissions, the pressure drop across the fabric filter in inches water gauge.

(a) If the fabric filter device uses a woven fabric the airflow permeability in $m^3/min/m^2$ and; if the fabric is synthetic, whether the fill yarn is spun or not spun.

(b) If the fabric filter device uses a felted fabric, the density in g/m^2 , the minimum thickness in inches, and the airflow permeability in $m^3/min/m^2$.

(3) For sources subject to subsections 10 and 11.

(a) A brief description of each process that generates asbestos-containing waste material.

(b) The average weight of asbestos-containing waste material disposed of, measured in kilograms per day.

(c) The emission control methods used in all stages of waste disposal.

(d) The type of disposal site or incineration site used for ultimate disposal, the name of the site operator, and the name and location of the disposal site.

(4) For sources subject to subsection 12:

(a) A brief description of the site.

(b) The method or methods used to comply with the standard, or alternative procedures to be used.

b. The information required by subdivision a must accompany the information required by subsection 8 of section 33-15-13-01. The information described in this section must be reported using the format of appendix A.

15. Active waste disposal sites. To be an acceptable site for disposal of asbestos-containing waste material under subsections 10 and 11, an active waste disposal site must meet the requirements of this subsection.

a. Either there shall be no visible emissions to the outside air from any active waste disposal site where asbestos-containing waste material has been deposited, or the requirements of subdivisions c and d must be met.

b. Unless a natural barrier adequately deters access by the general public, either warning signs and fencing must be installed and maintained as follows, or the requirements of paragraph 1 of subdivision c must be met.

(1) Warning signs must be displayed at all entrances and at intervals of three hundred twenty-eight feet [100 meters] or less along the property line of the site or along the perimeter of the sections of the site where asbestos-containing waste material is deposited. The warning signs must:

(a) Be posted in such a manner and location that a person may easily read the legend.

(b) Conform to the requirements of fifty-one centimeters by thirty-six centimeters [20 inches by 14 inches] upright format signs specified in 29 CFR 1910.145(d)(4) and this subsection.

(c) Display the following legend in the lower panel, with letter sizes and styles of a visibility at least equal to those specified in this paragraph.

<u>Legend</u>	<u>Notation</u>
Asbestos Waste Disposal Site	2.5 cm [1 inch] Sans Serif, Gothic, or Block
Do Not Create Dust	1.9 cm [3/4 inch] Sans Serif, Gothic, or Block
Breathing Asbestos is Hazardous to Your Health	14 Point Gothic

Spacing between lines must be at least equal to the height of the upper two lines.

- (2) The perimeter of the disposal site must be fenced in order to adequately deter access to the general public.
- (3) Upon request and supply of appropriate information, the department will determine whether a fence or a natural barrier adequately deters access by the general public.
- c. Rather than meet the requirements of subdivision a, an active waste disposal site would be an acceptable site if at the end of each operating day, or at least once every twenty-four-hour period while the site is in continuous operation, the asbestos-containing waste material which was deposited at the site during the operating day or previous twenty-four-hour period is covered with either:
 - (1) At least fifteen centimeters [6 inches] of compacted non-asbestos-containing material; or
 - (2) A resinous or petroleum-based dust suppression agent that effectively binds dust and controls wind erosion. This agent must be used as recommended for the particular dust by the manufacturer of the dust suppression agent. Other equally effective dust suppression agents may be used upon prior approval by the department. For purposes of this paragraph, waste crankcase oil is not considered a dust suppression agent.
- d. Rather than meet the requirements of subdivision a, an active waste disposal site would be an acceptable site if

an alternative control method for emissions that has received prior approval by the department and administrator is used.

History: Amended effective October 1, 1987.

General Authority: NDCC 23-25-03, 28-32-02

Law Implemented: NDCC 23-25-03

33-15-13-07. Emission standard for equipment leaks (fugitive emissions sources) of benzene.

1. Applicability and designation of sources.

- a. The provisions of this section apply to each of the following sources that are intended to operate in benzene service: pumps, compressors, pressure relief devices, sampling connection systems, open-ended valves or lines, valves, flanges and other connectors, product accumulator vessels, and control devices or systems required by this section.
- b. The provisions of this section do not apply to sources located in coke byproduct plants.
- c. (1) If an owner or operator applies for one of the exemptions in this subdivision, then the owner or operator shall maintain records, as required in subdivision i of subsection 7 of section 33-15-13-08.
(2) Any equipment in benzene service that is located at a plant site designed to produce or use less than one thousand megagrams of benzene per year is exempt from the requirements of subsection 3.
(3) Any process unit (defined in subsection 2 of section 33-15-13-08) that has no equipment in benzene service is exempt from the requirements of subsection 3.
- d. While the provisions of this section are effective, a source to which this section applies that is also subject to the provisions of chapter 33-15-12 only will be required to comply with the provisions of this section.

2. Definitions. As used in this section, all terms not defined herein shall have the meaning given them in North Dakota Century Code chapter 23-25 or in this chapter, and the following terms shall have the specific meanings given them:

- a. "In benzene service" means that a piece of equipment either contains or contacts a fluid (liquid or gas) that is at least ten percent benzene by weight as determined according to the provisions of subdivision d of

subsection 6 of section 33-15-13-08. The provisions of subdivision d of subsection 6 of section 33-15-13-08 also specify how to determine that a piece of equipment is not in benzene service.

b. "Semiannual" means a six-month period; the first semiannual period concludes on the last day of the last month during the one hundred eighty days following initial startup for new sources; and the first semiannual period concludes on the last day of the last full month during the one hundred eighty days after June 6, 1984, for existing sources.

3. Standards.

a. Each owner or operator subject to the provisions of this section shall comply with the requirements of section 33-15-13-08.

b. An owner or operator may elect to comply with the requirements of subsection 4 of section 33-15-13-08.

c. An owner or operator may apply to the department and administrator for a determination of an alternative means of emission limitation that achieves a reduction in emissions of benzene at least equivalent to the reduction in emissions of benzene achieved by the controls required in this section. In doing so, the owner or operator shall comply with requirements of subsection 5 of section 33-15-13-08.

History: Effective October 1, 1987.

General Authority: NDCC 23-25-03, 28-32-02

Law Implemented: NDCC 23-25-03

33-15-13-08. Emission standard for equipment leaks (fugitive emission sources).

1. Applicability and designation of sources.

a. The provisions of this section apply to each of the following sources that are intended to operate in volatile hazardous air pollutant (VHAP) service: pumps, compressors, pressure relief devices, sampling connection systems, open-ended valves or lines, valves, flanges and other connectors, product accumulator vessels, and control devices or systems required by this section.

b. The provisions of this section apply to the sources listed in subdivision a after the date of promulgation of a specific section.

c. While the provisions of this section are effective, a source to which this section applies that is also subject to the provisions of chapter 33-15-12 only will be required to comply with the provisions of this section.

2. Definitions. As used in this section, all terms not defined herein shall have the meaning given them in North Dakota Century Code chapter 23-25 or in this chapter; and the following terms shall have specific meaning given them:

a. "Closed-vent system" means a system that is not open to atmosphere and that is composed of piping, connections, and, if necessary, flow-inducing devices that transport gas or vapor from a piece or pieces of equipment to a control device.

b. "Connector" means flanged, screwed, welded, or other joined fittings used to connect two pipelines or a pipeline and a piece of equipment.

c. "Control device" means an enclosed combustion device, vapor recovery system, or flare.

d. "Double block and bleed system" means two block valves connected in series with a bleed valve or line that can vent the line between the two block valves.

e. "Equipment" means each pump, compressor, pressure relief device, sampling connection system, open-ended valve or line, valve, flange or other connector, produce accumulator vessel in volatile hazardous air pollutant service, and any control devices or systems required by this section.

f. "First attempt at repair" means to take rapid action for the purpose of stopping or reducing leakage of organic material to atmosphere using best practices.

g. "In gas/vapor service" means that a piece of equipment contains process fluid that is in the gaseous state at operating conditions.

h. "In liquid service" means that a piece of equipment is not in gas/vapor service.

i. "In-situ sampling systems" means nonextractive samplers or in-line samplers.

j. "In vacuum service" means that equipment is operating at an internal pressure which is at least five kilopascals (kPa) below ambient pressure.

- k. "In volatile hazardous air pollutant service" means that a piece of equipment either contains or contacts a fluid (liquid or gas) that is at least ten percent by weight a volatile hazardous air pollutant (VHAP) as determined according to the provisions of subdivision d of subsection 6. The same provisions also specify how to determine that a piece of equipment is not in volatile hazardous air pollutant service.
- l. "In volatile organic compounds" means, for the purposes of this section, that (1) the piece of equipment contains or contacts a process fluid that is at least ten percent volatile organic compounds by weight (see subsection 2 of section 33-15-12-01 for the definition of volatile organic compounds (VOC) and paragraph 4 of subdivision p of subsection 23 of section 33-15-13-04 to determine whether a piece of equipment is not in volatile organic compounds service); and (2) the piece of equipment is not in heavy liquid service as defined in subdivision b of subsection 23 of section 33-15-13-04.
- m. "Open-ended valve or line" means any valve, except pressure relief valves, having one side of the valve seat in contact with process fluid and one side open to atmosphere, either directly or through open piping.
- n. "Pressure release" means the emission of materials resulting from the system pressure being greater than the set pressure of the pressure relief device.
- o. "Process unit" means equipment assembled to produce a volatile hazardous air pollutant or its derivatives as intermediates or final products, or equipment assembled to use a volatile hazardous air pollutant in the production of a product. A process unit can operate independently if supplied with sufficient feed or raw materials and sufficient product storage facilities.
- p. "Process unit shutdown" means a work practice or operational procedure that stops production from a process unit or part of a process unit. An unscheduled work practice or operational procedure that stops production from a process unit or part of a process unit for less than twenty-four hours is not a process unit shutdown. The use of spare equipment without stopping production is not process unit shutdowns.
- q. "Product accumulator vessel" means any distillate receiver, bottoms receiver, surge control vessel, or product separator in volatile hazardous air pollutant service that is vented to atmosphere either directly or through a vacuum-producing system. A product accumulator vessel is in volatile hazardous air pollutant service if

the liquid or the vapor in the vessel is at least ten percent by weight volatile hazardous air pollutant.

- r. "Repaired" means that equipment is adjusted, or otherwise altered, to eliminate a leak as indicated by one of the following: an instrument reading of ten thousand parts per million or greater, indication of liquids dripping, or indication by a sensor that a seal or barrier fluid system has failed.
- s. "Semiannual" means a six-month period; the first semiannual period concludes on the last day of the last month during the one hundred eighty days following initial startup for new sources; and the first semiannual period concludes on the last day of the last full month during the one hundred eighty days after the effective date of a specific section that references this section for existing sources.
- t. "Sensor" means a device that measures a physical quantity or the change in a physical quantity, such as temperature, pressure, flow rate, pH, or liquid level.
- u. "Volatile hazardous air pollutant" means a substance regulated under this section for which a standard for equipment leaks of the substance has been proposed and promulgated. Benzene is a volatile hazardous air pollutant.

3. Standards.

a. General.

- (1) Each owner or operator subject to the provisions of this section shall demonstrate compliance with the requirements of subsection 3 for each new and existing source as required in subsection 4 of section 33-15-12-01, except as provided in subsections 4 and 5.
- (2) Compliance with this subsection will be determined by review of records, review of performance test results, and inspection using the methods and procedures specified in subsection 6.
- (3) (a) An owner or operator may request a determination of alternative means of emission limitation to the requirements of subdivisions b, c, e, f, g, h, i, and k as provided in subsection 4.
 - (b) If the department and administrator make a determination that a means of emission limitation is at least a permissible alternative

to the requirements of subdivisions b, c, e, f, g, h, i, and k, an owner or operator shall comply with the requirements of that determination.

- (4) Each piece of equipment to which this section applies shall be marked in such a manner that it can be distinguished readily from other pieces of equipment.
- (5) Equipment that is in vacuum service is excluded from the requirements of subsection 3 if it is identified as required in subdivision e of subsection 7.

b. Pumps.

- (1) (a) Each pump must be monitored monthly to detect leaks by the methods specified in subsection 6, except as provided in paragraph 3 of subdivision a and paragraphs 4, 5, and 6.
 - (b) Each pump must be checked by visual inspection each calendar week for indications of liquids dripping from the pump seal.
- (2) (a) If an instrument reading of ten thousand parts per million or greater is measured, a leak is detected.
 - (b) If there are indications of liquids dripping from the pump seal, a leak is detected.
- (3) (a) When a leak is detected, it must be repaired as soon as practicable, but not later than fifteen calendar days after it is detected, except as provided in subdivision j.
 - (b) A first attempt at repair must be made no later than five calendar days after each leak is detected.
- (4) Each pump equipped with a dual mechanical seal system that includes a barrier fluid system is exempt from the requirements of paragraph 1, provided the following requirements are met:
 - (a) Each dual mechanical seal system is:
 - [1] Operated with the barrier fluid at a pressure that is at all times greater than the pump stuffing box pressure; or
 - [2] Equipped with a barrier fluid degassing reservoir that is connected by a

closed-vent system to a control device that complies with the requirements of subdivision k.

[3] Equipped with a system that purges the barrier fluid into a process stream with zero volatile hazardous air pollutant emissions to atmosphere.

(b) The barrier fluid is not in volatile hazardous air pollutant service and, if the pump is covered by standards under chapter 33-15-12, is not in volatile organic compounds service.

(c) Each barrier fluid system is equipped with a sensor that will detect failure of the seal system, the barrier fluid system, or both.

(d) Each pump is checked by visual inspection each calendar week for indications of liquids dripping from the pump seal.

(e) [1] Each sensor as described in subparagraph c of paragraph 4 is checked daily or is equipped with an audible alarm.

[2] The owner or operator determines, based on design considerations and operating experience, a criterion that indicates failure of the seal system, the barrier fluid system, or both.

(f) [1] If there are indications of liquids dripping from the pump seal or the sensor indicates failure of the seal system, the barrier fluid system, or both, based on the criterion determined in item 2 of subparagraph e of paragraph 4, a leak is detected.

[2] When a leak is detected, it must be repaired as soon as practicable, but not later than fifteen calendar days after it is detected, except as provided in subdivision j.

[3] A first attempt at repair must be made no later than five calendar days after each leak is detected.

(5) Any pump that is designated, as described in subdivision e of subsection 7, for no visible emissions, as indicated by an instrument reading of

less than five hundred parts per million above background, is exempt from the requirements of paragraphs 1, 3, and 4 if the pump:

- (a) Has no externally actuated shaft penetrating the pump housing;
 - (b) Is demonstrated to be operating with no visible emissions, as indicated by an instrument reading of less than five hundred parts per million above background, as measured by the method specified in subdivision c of subsection 6; and
 - (c) Is tested for compliance with subparagraph b initially upon designation, annually, and at other times requested by the department.
- (6) If any pump is equipped with a closed-vent system capable of capturing and transporting any leakage from the seal or seals to a control device that complies with the requirements of subdivision k, it is exempt from the requirements of paragraphs 1 through 5.
- (7) Any pump that is located within the boundary of an unmanned plant site is exempt from the weekly visual inspection requirements of subparagraph b of paragraph 1 and subparagraph d of paragraph 4, and the daily requirements of item 1 of subparagraph e of paragraph 4, provided that each pump is visually inspected as often as practicable and at least monthly.

c. Compressors.

- (1) Each compressor must be equipped with a seal system that includes a barrier fluid system and that prevents leakage of process fluid to atmosphere, except as provided in paragraph 3 of subdivision a and paragraphs 8 and 9.
- (2) Each compressor seal system as required in paragraph 1 must be:
 - (a) Operated with the barrier fluid at a pressure greater than the compressor stuffing box pressure;
 - (b) Equipped with a barrier fluid system that is connected by a closed-vent system to a control device that complies with the requirements of subdivision k; or

- (c) Equipped with a system that purges the barrier fluid into a process stream with zero volatile hazardous air pollutant emissions to atmosphere.
- (3) The barrier fluid may not be in volatile hazardous air pollutant service and, if the compressor is covered by standards under chapter 33-15-12, may not be in volatile organic compounds service.
- (4) Each barrier fluid system as described in paragraphs 1 through 3 must be equipped with a sensor that will detect failure of the seal system, barrier fluid system, or both.
- (5) Each sensor as required in paragraph 4 must be checked daily or must be equipped with an audible alarm unless the compressor is located within the boundary of an unmanned plant site.
- (6) If the sensor indicates failure of the seal system, or both based on the criterion determined under subparagraph b of paragraph 5, a leak is detected.
- (7) (a) When a leak is detected, it must be repaired as soon as practicable, but not later than fifteen calendar days after it is detected, except as provided in subdivision j.
- (b) A first attempt at repair must be made no later than five calendar days after each leak is detected.
- (8) A compressor is exempt from the requirements of paragraphs 1 and 2 if it is equipped with a closed-vent system capable of capturing and transporting any leakage from the seal to a control device that complies with the requirements of subdivision k except as provided in paragraph 9.
- (9) Any compressor that is designated, as described in paragraph 2 of subdivision e of subsection 7, for no visible emission as indicated by an instrument reading of less than five hundred parts per million above background is exempt from the requirements of paragraphs 1 and 2 if the compressor:
- (a) Is demonstrated to be operating with no visible emissions, as indicated by an instrument reading of less than five hundred parts per million above background, as measured by the method specified in subdivision c of subsection 6; and

(b) Is tested for compliance with subparagraph a initially upon designation, annually, and at other times requested by the department.

d. Pressure relief devices in gas/vapor service.

(1) Except during pressure releases, each pressure relief device in gas/vapor service must be operated with no visible emissions, as indicated by an instrument reading of less than five hundred parts per million above background, as measured by the method specified in subdivision c of subsection 6.

(2) (a) After each pressure release, the pressure relief device must be returned to a condition of no visible emissions, as indicated by an instrument reading of less than five hundred parts per million above background, as soon as practicable, but no later than five calendar days after each pressure release, except as provided in subdivision j.

(b) No later than five calendar days after the pressure release, the pressure relief device shall be monitored to confirm the condition of no visible emissions, as indicated by an instrument reading of less than five hundred parts per million above background, as measured by the method specified in subdivision c of subsection 6.

(3) Any pressure relief device that is equipped with a closed-vent system capable of capturing and transporting leakage from the pressure relief device to a control device as described in subdivision k is exempt from the requirements of paragraphs 1 and 2.

e. Sampling connecting systems.

(1) Each sampling connection system must be equipped with a closed-purge system or closed-vent system, except as provided in paragraph 3 of subdivision a.

(2) Each closed-purge system or closed-vent system as required in paragraph 1 shall:

(a) Return the purged process fluid directly to the process line with zero volatile hazardous air pollutant emissions to atmosphere;

(b) Collect and recycle the purged process fluid with zero volatile hazardous air pollutant emissions to atmosphere; or

(c) Be designed and operated to capture and transport all the purged process fluid to a control device that complies with the requirements of subdivision k.

(3) In-situ sampling systems are exempt from the requirements of paragraphs 1 and 2.

f. Open-ended valves or lines.

(1) (a) Each open-ended valve or line must be equipped with a cap, blind flange, plug, or a second valve, except as provided in paragraph 3 of subdivision a.

(b) The cap, blind flange, plug, or second valve will seal the open end at all times except during operations requiring process fluid flow through the open-ended valve or line.

(2) Each open-ended valve or line equipped with a second valve shall be operated in a manner such that the valve on the process fluid end is closed before the second valve is closed.

(3) When a double block and bleed system is being used, the bleed valve or line may remain open during operations that require venting the line between the block valves but shall comply with paragraph 1 at all other times.

g. Valves.

(1) Each valve must be monitored monthly to detect leaks by the method specified in subdivision b of subsection 6 and shall comply with paragraphs 2 through 5, except as provided in paragraphs 6, 7, and 8, subsection 4, and paragraph 3 of subdivision a.

(2) If an instrument reading of ten thousand parts per million or greater is measured, a leak is detected.

(3) (a) Any valve for which a leak is not detected for two successive months may be monitored the first month of every quarter, beginning with the next quarter, until a leak is detected.

(b) If a leak is detected, the valve must be monitored monthly until a leak is not detected for two successive months.

(4) (a) When a leak is detected, it must be repaired as soon as practicable, but no later than fifteen

calendar days after the leak is detected, except as provided in subdivision j.

(b) A first attempt at repair must be made no later than five calendar days after each leak is detected.

(5) First attempts at repair include, but are not limited to, the following best practices where practicable:

(a) Tightening of bonnet bolts.

(b) Replacement of bonnet bolts.

(c) Tightening of packing gland nuts.

(d) Injection of lubricant into lubricated packing.

(6) Any valve that is designated, as described in subdivision e of subsection 7, for no visible emissions, as indicated by an instrument reading of less than five hundred parts per million above background, is exempt from the requirements of paragraph 1 if the valve:

(a) Has no external actuating mechanism in contact with the process fluid;

(b) Is operated with emissions less than five hundred parts per million above background, as measured by the method specified in subdivision c of subsection 6; and

(c) Is tested for compliance with subparagraph b initially upon designation, annually, and at other times required by the department.

(7) Any valve that is designated, as described in paragraph 1 of subdivision f of subsection 7, as an unsafe-to-monitor valve is exempt from the requirements of paragraph 1 if:

(a) The owner or operator of the valve demonstrates that the valve is unsafe to monitor because monitoring personnel would be exposed to an immediate danger as a consequence of complying with paragraph 1; and

(b) The owner or operator of the valve has a written plan that requires monitoring of the valve as frequently as practicable during safe-to-monitor times.

(8) Any valve that is designated, as described in paragraph 2 of subdivision f of subsection 7, as a difficult-to-monitor valve is exempt from the requirements of paragraph 1 if:

(a) The owner or operator of the valve demonstrates that the valve cannot be monitored without elevating the monitoring personnel more than two meters above a support surface;

(b) The process unit within which the valve is located is an existing process unit; and

(c) The owner or operator of the valve follows a written plan that requires monitoring of the valve at least once per calendar year.

h. Pressure relief devices in liquid service and flanges and other connectors.

(1) Pressure relief devices in liquid service and flanges and other connectors must be monitored within five days by the method specified in subdivision b of subsection 6 if evidence of a potential leak is found by visual, audible, olfactory, or any other detection method, except as provided in paragraph 3 of subdivision a.

(2) If an instrument reading of ten thousand parts per million or greater is measured, a leak is detected.

(3) (a) When a leak is detected, it must be repaired as soon as practicable, but not later than fifteen calendar days after it is detected, except as provided in subdivision j.

(b) The first attempt at repair must be made no later than five calendar days after each leak is detected.

(4) First attempts at repair include, but are not limited to, the best practices described under paragraph 5 of subdivision g.

i. Product accumulator vessels. Each product accumulator vessel must be equipped with a closed-vent system capable of capturing and transporting any leakage from the vessel to a control device as described in subdivision k, except as provided in paragraph 3 of subdivision a.

j. Delay of repair.

- (1) Delay of repair of equipment for which leaks have been detected will be allowed if the repair is technically infeasible without a process unit shutdown. Repair of this equipment shall occur before the end of the next process unit shutdown.
- (2) Delay of repair of equipment for which leaks have been detected will be allowed for equipment that is isolated from the process and that does not remain in volatile hazardous air pollutant service.
- (3) Delay of repair for valves will be allowed if:
 - (a) The owner or operator demonstrates that emissions of purged material resulting from immediate repair are greater than the fugitive emissions likely to result from the delay of repair; and
 - (b) When repair procedures are effected, the purged material is collected and destroyed or recovered in a control device complying with subdivision k.
- (4) Delay of repair for pumps will be allowed if:
 - (a) Repair requires the use of a dual mechanical seal system that includes a barrier fluid system; and
 - (b) Repair is completed as soon as practicable, but not later than six months after the leak was detected.
- (5) Delay of repair beyond a process unit shutdown will be allowed for a valve if valve assembly replacement is necessary during the process unit shutdown, valve assembly supplies have been depleted, and valve assembly supplies had been sufficiently stocked before the supplies were depleted. Delay of repair beyond the next process unit shutdown will not be allowed unless the next process unit shutdown occurs sooner than six months after the first process unit shutdown.

k. Closed-vent system and control devices.

- (1) Owners or operators of closed-vent systems and control devices used to comply with provisions of this section shall comply with the provisions of this section, except as provided in paragraph 3 of subdivision a.

- (2) Vapor recovery systems (for example, condensers and absorbers) must be designed and operated to recover the organic vapors vented to them with an efficiency of ninety-five percent or greater.
- (3) Enclosed combustion devices must be designated and operated to reduce the volatile hazardous air pollutant emissions vented to them with an efficiency of ninety-five percent or greater or to provide a minimum residence time of 0.50 seconds at a minimum temperature of seven hundred sixty degrees Celsius [1400 degrees Fahrenheit].
- (4) Flares used to comply with this section shall comply with the requirements of subsection 14 of section 33-15-12-01.
- (5) Owners or operators of control devices that are used to comply with the provisions of this section shall monitor these control devices to ensure that they are operated and maintained in conformance with their design.
- (6) (a) Closed-vent systems must be designed for and operated with no visible emissions, as indicated by an instrument reading of less than five hundred parts per million above background and by visual inspections, as determined by the methods specified in subdivision c of subsection 6.
- (b) Closed-vent systems must be monitored to determine compliance with this subsection initially in accordance with subsection 4 of section 33-15-13-01, annually, and at other times requested by the department.
- (c) Leaks, as indicated by an instrument reading greater than five hundred parts per million and visual inspections, must be repaired as soon as practicable, but not later than fifteen calendar days after the leak is detected.
- (d) A first attempt at repair must be made no later than five calendar days after the leak is detected.
- (7) Closed-vent systems and control devices used to comply with provisions of this section shall be operated at all times when emissions may be vented to them.

4. Alternative standards for valves in volatile hazardous air pollutant service.

a. Allowable percentage of valves leaking.

(1) An owner or operator may elect to have all valves within a process unit to comply with an allowable percentage of valves leaking of equal to or less than two percent.

(2) The following requirements must be met if an owner or operator decides to comply with an allowable percentage of valves leaking:

(a) An owner or operator must notify the department that the owner or operator has elected to have all valves within a process unit comply with the allowable percentage of valves leaking before implementing this alternative standard, as specified in subdivision d of subsection 8.

(b) A performance test as specified in paragraph 3 of this section must be conducted initially upon designation, annually, and at other times requested by the department.

(c) If a valve leak is detected, it must be repaired in accordance with paragraphs 4 and 5 of subdivision g of subsection 3.

(3) Performance test must be conducted in the following manner:

(a) All valves in volatile hazardous air pollutant service within the process unit must be monitored within one week by the methods specified in subdivision b of subsection 6.

(b) If an instrument reading of ten thousand parts per million or greater is measured, a leak is detected.

(c) The leak percentage must be determined by dividing the number of valves in volatile hazardous air pollutant service for which leaks are detected by the number of valves in volatile hazardous air pollutant service within the process unit.

(4) Owners or operators who elect to have all valves comply with this alternative standard may not have a process unit with a leak percentage greater than two percent.

(5) If an owner or operator decides no longer to comply with this subdivision, the owner or operator must notify the department in writing that the work practice standard described in subdivision g of subsection 3 will be followed.

b. Skip period leak detection and repair.

(1) (a) An owner or operator may elect for all valves within a process unit to comply with one of the alternative work practices specified in subparagraphs b and c of paragraph 2.

(b) An owner or operator must notify the department before implementing one of the alternative work practices, as specified in subdivision d of subsection 8.

(2) (a) An owner or operator shall comply initially with the requirements for valves, as described in subdivision g of subsection 3.

(b) After two consecutive quarterly leak detection periods with the percentage of valves leaking equal to or less than two, an owner or operator may begin to skip one of the quarterly leak detection periods for the valves in volatile hazardous air pollutant service.

(c) After five consecutive quarterly leak detection periods with the percentage of valves leaking equal to or less than two, an owner or operator may begin to skip three of the quarterly leak detection periods for the valves in volatile hazardous air pollutant service.

(d) If the percentage of valves leaking is greater than two, the owner or operator shall comply with the requirements as described in subdivision g of subsection 3 but may again elect to use this subdivision.

5. Alternative means of emission limitation.

a. Permission to use an alternative means of emission limitation under section 112(e)(3) of the Clean Air Act shall be governed by the following procedures:

b. Where the standard is an equipment, design, or operational requirement:

(1) Each owner or operator applying for permission is responsible for collecting and verifying test data

for an alternative means of emission limitation, test data for the equipment, design, and operational requirements.

- (2) The department and administrator may condition the permission on requirements that may be necessary to assure operation and maintenance to achieve the same emission reduction as the equipment, design, and operational requirements.

c. Where the standard is a work practice:

- (1) Each owner or operator applying for permission is responsible for collecting and verifying test data for an alternative means of emission limitation.
- (2) For each source for which permission is required, the emission reduction achieved by the required work practices must be demonstrated for a minimum period of twelve months.
- (3) For each source for which permission is requested, the emission reduction achieved by the alternative means of emission limitation must be demonstrated.
- (4) Each owner or operator applying for permission shall commit, in writing, each source to work practices that provide for emission reductions equal to or greater than the emission reductions achieved by the required work practices.
- (5) The department and administrator will compare the demonstrated emission reduction for the alternative means of emission limitation to the demonstrated emission reduction for the required work practices and will consider the commitment in paragraph 4.
- (6) The department and administrator may condition the permission on requirements that may be necessary to assure operation and maintenance to achieve the same emission reduction as the required work practices of this subsection.

d. An owner or operator may offer a unique approach to demonstrate the alternative means of emission limitation.

- e. (1) Manufacturers of equipment used to control equipment leaks of a volatile hazardous air pollutant may apply to the department for permission for an alternative means of emission limitation that achieves a reduction in emissions of the volatile hazardous air pollutant achieved by the equipment, design, and operational requirements of this section.

(2) The department and administrator will grant permission according to the provisions of subdivisions b, c, and d.

6. Test methods and procedures.

a. Each owner or operator subject to the provisions of this section shall comply with the test methods and procedures requirements provided in this section.

b. Monitoring, as required in subsections 3, 4, and 5, shall comply with the following requirements:

(1) Monitoring shall comply with reference method 21.

(2) The detection instrument shall meet the performance criteria of reference method 21.

(3) The instrument shall be calibrated before use on each day of its use by the procedures specified in reference method 21.

(4) Calibration gases shall be:

(a) Zero air (less than ten parts per million of hydrocarbon in air); and

(b) A mixture of methane or n-hexane and air at a concentration of approximately, but less than ten thousand parts per million methane or n-hexane.

(5) The instrument probe must be traversed around all potential leak interfaces as close to the interface as possible as described in reference method 21.

c. When equipment is tested for compliance with no visible emissions, as required in subdivisions b, c, d, g, and k, the test shall comply with the following requirements:

(1) The requirements of paragraphs 1 through 4 of subdivision b shall apply.

(2) The background level must be determined, as set forth in reference method 21.

(3) The instrument probe must be traversed around all potential leak interfaces as close to the interface as possible as described in reference method 21.

(4) The arithmetic difference between the maximum concentration indicated by the instrument and the

background level is compared with five hundred parts per million for determining compliance.

d. (1) Each piece of equipment within a process unit that can conceivably contain equipment in volatile hazardous air pollutant service is presumed to be in volatile hazardous air pollutant service unless an owner or operator demonstrates that the piece of equipment is not in volatile hazardous air pollutant service. For a piece of equipment to be considered not in volatile hazardous air pollutant service, it must be determined that the percent volatile hazardous air pollutant content can be reasonably expected never to exceed ten percent by weight. For purposes of determining the percent volatile hazardous air pollutant content of the process fluid that is contained in or contacts equipment, procedures that conform to the methods described in A.S.T.M. method D-2267 must be used.

(2) (a) An owner or operator may use engineering judgment rather than the procedures in paragraph 1 to demonstrate that the percent volatile hazardous air pollutant content does not exceed ten percent by weight, provided that the engineering judgment demonstrates that the volatile hazardous air pollutant content clearly does not exceed ten percent by weight. When an owner or operator and the department do not agree on whether a piece of equipment is not in volatile hazardous air pollutant service, however, the procedures in paragraph 1 of this section must be used to resolve the disagreement.

(b) If an owner or operator determines that a piece of equipment is in volatile hazardous air pollutant service, the determination can be revised only after following the procedures in paragraph 1.

(3) Samples used in determining the percent volatile hazardous air pollutant content must be representative of the process fluid that is contained in or contacts the equipment or the gas being combusted in the flare.

e. (1) Reference method 22 must be used to determine compliance of flares with the visible emission provisions of this section.

(2) The presence of a flare pilot flame must be monitored using a thermocouple or any other equivalent device to detect the presence of a flame.

(3) The net heating value of the gas being combusted in a flare must be calculated using the following equation:

$$H_T = K \sum_{i=1}^N C_i H_i$$

where:

H_T = Net heating value of the sample MJ/scm;

where the net enthalpy per mole of off-gas is based on combustion at twenty-five degrees Celsius and seven hundred sixty mm Hg, but the standard temperature for determining the volume corresponding to one mole is twenty degrees Celsius.

K = Constant, 1.74×10^{-7} (1/ppm) (g mole/scm) (MJ/kcal) where standard temperature for (g mole/scm) is twenty degrees Celsius.

C_i = Concentration of sample component i in ppm, as measured by reference method 18 of appendix A of chapter 33-15-12 and A.S.T.M. D2504-67 (reapproved 1977).

H_i = Net heat of combustion of sample component i , kcal/g mole. The heats of combustion may be determined using A.S.T.M. D2382-76 if published values are not available or cannot be calculated.

(4) The actual exit velocity of a flare must be determined by dividing the volumetric flow rate (in units of standard temperature and pressure), as determined by reference method 2, 2A, 2C, or 2D, as appropriate, by the unobstructed (free) cross-section area of the flare tip.

(5) The maximum permitted velocity, V_{max} for air-assisted flares must be determined by the following equation:

$$V_{max} = 8.76 + 0.7084 (H_T)$$

where:

V_{max} = Maximum permitted velocity, m/sec

8.706 = Constant.

0.7084 = Constant.

H_T = The net heating value as determined in paragraph 3.

7. Recordkeeping requirements.

a. (1) Each owner or operator subject to the provisions of this section shall comply with the recordkeeping requirements of this subsection.

(2) An owner or operator of more than one process unit subject to the provisions of this section may comply with the recordkeeping requirements for these process units in one recordkeeping system if the system identifies each record by each process unit.

b. When each leak is detected as specified in subdivisions b, c, g, and h of subsection 3, the following requirements apply:

(1) A weatherproof and readily visible identification, marked with the equipment identification number, must be attached to the leaking equipment.

(2) The identification on a valve may be removed after it has been monitored for two successive months as specified in subdivision g of subsection 3 and no leak has been detected during those two months.

(3) The identification on equipment, except on a valve, may be removed after it has been repaired.

c. When each leak is detected, as specified in subdivisions b, c, g, and h of subsection 3, the following information must be recorded in a log and shall be kept for two years in a readily accessible location:

(1) The instrument and operator identification numbers and the equipment identification number.

(2) The date the leak was detected and the dates of each attempt to repair the leak.

(3) Repair methods applied in each attempt to repair the leak.

(4) "Above ten thousand" if the maximum instrument reading measured by the methods specified in subdivision a of subsection 6 after each repair attempt is equal to or greater than ten thousand parts per million.

- (5) "Repair delayed" and the reason for the delay if a leak is not repaired within fifteen calendar days after discovery of the leak.
 - (6) The signature of the owner or operator (or designate) whose decision it was that repair could not be effected without a process shutdown.
 - (7) The expected date of successful repair of the leak if a leak is not repaired within fifteen calendar days.
 - (8) Dates of process unit shutdowns that occur while the equipment is unrepaired.
 - (9) The date of successful repair of the leak.
- d. The following information pertaining to the design requirements for closed-vent systems and control devices described in subdivision k of subsection 3 must be recorded and kept in a readily accessible location:
- (1) Detailed schematics, design specifications, and piping and instrumentation diagrams.
 - (2) The dates and descriptions of any changes in the design specifications.
 - (3) A description of the parameter or parameters monitored, as required in paragraph 5 of subdivision k of subsection 3, to ensure that control devices are operated and maintained in conformance with their design and an explanation of why that parameter (or parameters) was selected for the monitoring.
 - (4) Periods when the closed-vent systems and control devices required in subdivisions b, c, d, e, and i of subsection 3 are not operated as designed, including periods when a flare pilot light does not have a flame.
 - (5) Dates of startups and shutdowns of the closed-vent systems and control devices required in subdivisions b, c, d, e, and i of subsection 3.
- e. The following information pertaining to all equipment subject to the requirements in subsection 3 must be recorded in a log that is kept in a readily accessible location:
- (1) A list of identification numbers for equipment subject to the requirements of this section.

- (2) (a) A list of identification numbers for equipment that the owner or operator elects to designate for no visible emissions, as indicated by an instrument reading of less than five hundred parts per million above background, under the provisions of paragraph 5 of subdivision b, paragraph 9 of subdivision c, and paragraph 6 of subdivision g of subsection 3.
- (b) The designation of this equipment as subject to the requirements of paragraph 5 of subdivision b, paragraph 9 of subdivision c, and paragraph 6 of subdivision g of subsection 3 must be signed by the owner or operator.
- (3) A list of equipment identification numbers for pressure relief devices required to comply with paragraph 1 of subdivision d of subsection 3.
- (4) (a) The dates of each compliance test required in paragraph 5 of subdivision b, paragraph 9 of subdivision c, and paragraph 6 of subdivision g of subsection 3.
- (b) The background level measured during each compliance test.
- (c) The maximum instrument reading measured at the equipment during each compliance test.
- (5) A list of identification numbers for equipment in vacuum service.
- f. The following information pertaining to all valves subject to the requirements of paragraphs 7 and 8 of subdivision g of subsection 3 must be recorded in a log that is kept in a readily accessible location:
- (1) A list of identification numbers for valves that are designated as unsafe to monitor, an explanation for each valve stating why the valve is unsafe to monitor, and the plan for monitoring each valve.
- (2) A list of identification numbers for valves that are designated as difficult to monitor, an explanation for each valve stating why the valve is difficult to monitor, and the planned schedule for monitoring each valve.
- g. The following information must be recorded for valves complying with subdivision b of subsection 4.
- (1) A schedule for monitoring.

- (2) The percent of valves found leaking during each monitoring period.
- h. The following information must be recorded in a log that is kept in a readily accessible location:
 - (1) Design criterion required in subparagraph e of paragraph 4 of subdivision b and subparagraph b of paragraph 5 of subdivision c of subsection 3 and an explanation of the design criterion; and
 - (2) Any changes to this criterion and the reasons for the changes.
- i. The following information must be recorded in a log that is kept in a readily accessible location for use in determining exemptions as provided in the applicability subsection and other specific sections:
 - (1) An analysis demonstrating the design capacity of the process unit.
 - (2) An analysis demonstrating that equipment is not in volatile hazardous air pollutant service.
- j. Information and data used to demonstrate that a piece of equipment is not in volatile hazardous air pollutant service must be recorded in a log that is kept in a readily accessible location.

8. Reporting requirements.

- a. (1) An owner or operator of any piece of equipment to which this section applies shall submit a statement in writing notifying the department that the requirements of subsections 3, 6, 7, and 8 are being implemented.
- (2) In the case of an existing source or a new source which has an initial startup date preceding the effective date, the statement is to be submitted within ninety days of the effective date, unless a compliance schedule is granted under subsection 9 of section 33-15-13-01, along with the information required under subsection 8 of section 33-15-13-01. If a compliance schedule is granted, the statement is to be submitted on a date scheduled by the department.
- (3) In the case of new sources which did not have an initial startup date preceding the effective date, the statement must be submitted with the application

for approval of construction, as described in subsection 6 of section 33-15-13-01.

(4) The statement is to contain the following information for each source:

(a) Equipment identification number and process unit identification.

(b) Type of equipment (for example, a pump or pipeline valve).

(c) Percent by weight volatile hazardous air pollutant in the fluid at the equipment.

(d) Process fluid state at the equipment (gas/vapor or liquid).

(e) Method of compliance with the standard (for example, "monthly leak detection and repair" or "equipped with dual mechanical seals").

b. A report must be submitted to the department semiannually starting six months after the initial report required in subdivision a that includes the following information:

(1) Process unit identification.

(2) For each month during the semiannual reporting period.

(a) Number of valves for which leaks were detected as described in paragraph 2 of subdivision g of subsection 3 and subdivision b of subsection 4.

(b) Number of valves for which leaks were not repaired as required in paragraph 4 of subdivision g of subsection 3.

(c) Number of pumps for which leaks were detected as described in paragraphs 2 and 4 of subdivision b of subsection 3.

(d) Number of pumps for which leaks were not repaired as required in paragraphs 2 and 4 of subdivision b of subsection 3.

(e) Number of compressors for which leaks were detected as described in paragraph 6 of subdivision c of subsection 3.

- (f) Number of compressors for which leaks were not repaired as required in paragraph 7 of subdivision c of subsection 3.
 - (g) The facts that explain any delay of repairs and, where appropriate, why a process unit shutdown was technically infeasible.
- (3) Dates of process unit shutdowns which occurred within the semiannual reporting period.
 - (4) Revisions to items reported according to subdivision a if changes have occurred since the initial report or subsequent revisions to the initial report.
 - (5) The results of all performance testing to determine compliance with paragraph 5 of subdivision b, paragraph 9 of subdivision c, paragraph 1 of subdivision d, paragraph 6 of subdivision g, paragraph 6 of subdivision k of subsection 3 and subsection 4.
- c. In the first report submitted as required in subdivision a, the report must include a reporting schedule stating the months that semiannual reports shall be submitted. Subsequent reports must be submitted according to that schedule, unless a revised schedule has been submitted in a previous semiannual report.
- d. An owner or operator electing to comply with the provisions of subsection 4 shall notify the department of the alternative standard selected ninety days before implementing either of the provisions.
- e. An application for approval of construction or modification, subdivision a of subsection 4 and subsection 6 of section 33-15-13-01, will not be required if:
- (1) The new source complies with the standard in subsection 3;
 - (2) The new source is not part of the construction of a process unit; and
 - (3) In the next semiannual report required by subdivision b, the information in paragraph 4 of subdivision a is reported.

History: Effective October 1, 1987.

General Authority: NDCC 23-25-03, 28-32-02

Law Implemented: NDCC 23-25-03

APPENDIX

The appendix references, as specified within chapter 33-15-13, are identical to those specified in appendix A and appendix B, as amended, of Title 40, Code of Federal Regulations, Part 61 (40 CFR 61).

Appendix A - Compliance Status Information

Appendix B - Test Methods

- Method 101 - Reference Method for Determination of Particulate and Gaseous Mercury Emissions from Stationary Sources (air streams)
- Method 102 - Reference Method for Determination of Particulate and Gaseous Mercury Emissions from Stationary Sources (hydrogen streams)
- Method 103 - Beryllium Screening Method
- Method 104 - Reference Method for Determination of Beryllium Emissions from Stationary Sources
- Method 105 - Method for Determination of Mercury in Wastewater Treatment Plant Sewage Sludges
- Method 106 - Determination of Vinyl Chloride from Stationary Sources
- Method 107 - Determination of Vinyl Chloride Content of Inprocess Wastewater Samples, and Vinyl Content of Polyvinyl Chloride Resin, Slurry, Wet Cake and Latex Samples

33-15-14-01. Designated air contaminant sources. Pursuant to subsection 1 of North Dakota Century Code section 23-25-04.1, stationary sources within the following source categories are designated as air contaminant sources capable of causing or contributing to air pollution, either directly or indirectly.

1. The following chemical process facilities:
 - a. Adipic acid.
 - b. Ammonia.
 - c. Ammonium nitrate.
 - d. Carbon black.
 - e. Charcoal.
 - f. Chlorine.
 - g. Chlor-alkali manufacturing.
 - h. Detergent and soap.
 - i. Explosives (trinitrotoluene and nitrocellulose).
 - j. Hydrochloric acid.
 - k. Hydrofluoric acid.
 - l. Nitric acid.
 - m. Paint and varnish manufacturing.
 - n. Phosphoric acid.
 - o. Phthalic anhydride.
 - p. Plastics manufacturing.
 - q. Printing ink manufacturing.
 - r. Sodium carbonate.
 - s. Sulfur production and recovery.
 - t. Sulfuric acid.
 - u. Synthetic fibers.
 - v. Synthetic rubber.
 - w. Terephthalic acid.

x. Alcohol.

2. The following food and agricultural facilities:
 - a. Agricultural drying and dehydrating operations.
 - b. Ammonium nitrate.
 - c. Cheese whey drying and processing.
 - d. Coffee roasting.
 - e. Cotton ginning.
 - f. Feed, grain, and seed handling and processing.
 - g. Fermentation processes.
 - h. Fertilizers.
 - i. Fish meal processing.
 - j. Meat smokehouses.
 - k. Orchard heaters.
 - l. Potato processing.
 - m. Rendering plants.
 - n. Starch manufacturing.
 - o. Sugarbeet processing.
3. The following metallurgical facilities:
 - a. Primary metals facilities:
 - (1) Aluminum ore reduction.
 - (2) Copper smelters.
 - (3) Ferroalloy production.
 - (4) Iron and steel mills.
 - (5) Lead smelters.
 - (6) Metallurgical coke manufacturing.
 - (7) Zinc.
 - b. Secondary metals facilities:

- (1) Aluminum operations.
 - (2) Brass and bronze smelting.
 - (3) Ferroalloys.
 - (4) Ferrous foundries.
 - (5) Gray iron foundries.
 - (6) Lead smelting.
 - (7) Magnesium smelting.
 - (8) Nonferrous foundries.
 - (9) Steel foundries.
 - (10) Zinc processes.
4. The following mineral products facilities:
- a. Asphalt roofing.
 - b. Asphaltic concrete plants.
 - c. Bricks and related clay refractories.
 - d. Calcium carbide.
 - e. Ceramic and clay processes.
 - f. Clay and fly ash sintering.
 - g. Coal cleaning.
 - h. Coal drying.
 - i. Coal mining.
 - j. Coal handling and processing.
 - k. Concrete batching.
 - l. Fiberglass manufacturing.
 - m. Frit manufacturing.
 - n. Glass manufacturing.
 - o. Gypsum manufacturing.
 - p. Leonardite mining, drying, and processing.

- q. Lime manufacturing.
 - r. Mineral wool manufacturing.
 - s. Paperboard manufacturing.
 - t. Perlite manufacturing.
 - u. Phosphate rock preparation.
 - v. Portland cement manufacturing, bulk handling, and storage.
 - w. Rock, stone, gravel, and sand quarrying and processing.
 - x. Uranium mining, milling, and enrichment.
5. The following energy and fuel facilities:
- a. Coal gasification.
 - b. Coal ~~liquification~~ liquefaction.
 - c. Crude oil and natural gas production.
 - d. Fossil fuel steam electric plants.
 - e. Fuel conversion plants.
 - f. Natural gas processing.
 - g. Petroleum refining and petrochemical operations.
 - h. Petroleum storage (storage tanks and bulk terminals).
6. The following wood processing facilities:
- a. Plywood veneer and layout operations.
 - b. Pulpboard manufacturing.
 - c. Wood pulping.
7. The following gaseous, liquid, and solid waste disposal facilities:
- a. Afterburners.
 - b. Automobile body incinerators.
 - c. Conical burners.
 - d. Flares.

- e. Gaseous and liquid organic compounds incinerators.
 - f. Industrial waste incinerators.
 - g. Open burning.
 - h. Open pit incinerators.
 - i. Pathological waste incinerators.
 - j. Refuse incinerators.
 - k. Scrap metal salvage incinerators.
 - l. Sewage sludge incinerators.
 - m. Wood waste incinerators.
8. The following miscellaneous facilities:
 - a. Drycleaning and laundry operations.
 - b. Fuel burning equipment.
 - c. Internal combustion engines.
 - d. Surface coating operations.
 - e. Wastewater treatment plants (including lagoons).
 - f. Water cooling towers and water cooling ponds.
 9. Any category of sources to which a federal standard of performance applies.
 10. Any source which emits a contaminant subject to a national emission standard for hazardous air pollutants.
 11. Any source which is subject to review under federal significant deterioration of air quality regulations.
 12. Any source which is determined by the department to have an emission which affects state ambient air quality standards.

History: Amended effective October 1, 1987.

General Authority: NDCC 28-32-02

Law Implemented: NDCC 23-25-04.1

33-15-14-02. Permit to construct.

1. **Permit to construct required.** No construction, installation, or establishment of a new stationary source within a source

category designated in section 33-15-14-01 ~~shall~~ may be commenced unless the owner or operator thereof shall file an application for, and receive, a permit to construct in accordance with this chapter. This requirement shall also apply to any source for which a federal standard of performance has been promulgated prior to such filing of an application for a permit to construct. A list of sources for which a federal standard has been promulgated, and the standards which apply to such sources, ~~shall~~ must be available at the department's offices.

2. Application for permit to construct.

- a. Application for a permit to construct a new installation or source ~~shall~~ must be made by the owner or operator thereof on forms furnished by the department.
- b. A separate application is required for each new installation or source subject to this chapter.
- c. Each application ~~shall~~ must be signed by the applicant, which signature shall constitute an agreement that the applicant will assume responsibility for the construction or operation of the new installation or source in accordance with this article and will notify the department, in writing, of the startup of operation of such source.

3. Alterations to source.

- a. The addition to or enlargement of or replacement of or major alteration in any stationary source, already existing, which is undertaken pursuant to an approved compliance schedule for the reduction of emissions therefrom, shall be exempt from the requirements of this section.
- b. Any physical change in, or change in the method of operation of, a stationary source already existing which increases or may increase the emission rate of any pollutant for which an ambient air quality standard has been promulgated under this article or which results in the emission of any such pollutant not previously emitted ~~shall~~ must be considered to be construction, installation, or establishment of a new source, except that:
 - (1) Routine maintenance, repair, and replacement ~~shall~~ may not be considered a physical change.
 - (2) The following ~~shall~~ may not be considered a change in the method of operation:

(a) An increase in the production rate, if such increase does not exceed the operating design capacity of the source.

(b) An increase in the hours of operation.

4. **Submission of plans - Deficiencies in application.** As part of an application for a permit to construct, the department may require the submission of plans, specifications, siting information, emission information, descriptions and drawings showing the design of the installation or source, the manner in which it will be operated and controlled, the emissions expected from it, and the effects on ambient air quality. Any additional information, plans, specifications, evidence, or documentation that the department may require ~~shall~~ must be furnished upon request. Within twenty days of the receipt of the application, the department shall advise the owner or operator of the proposed source of any deficiencies in the application. In the event of a deficiency, the date of receipt of the application ~~shall be~~ is the date upon which all requested information is received.
5. **Review of application - Standard for granting permits to construct.** The department shall review any plans, specifications, and other information submitted in application for a permit to construct and from such review shall, within thirty days of the receipt of the completed application, make the following preliminary determinations:
- a. Whether the proposed project will be in accord with this article, including whether the operation of any new stationary source at the proposed location will result in any applicable ambient air quality standards being exceeded.
 - b. Whether the proposed project will provide all known available and reasonable methods of emission control. Whenever a standard of performance is applicable to the source, compliance with this criterion will require provision for emission control which will, at least, satisfy such standards.
6. **Public participation - Final action on application.** This subsection shall apply only to those affected facilities designated under chapters 33-15-12, 33-15-13, and 33-15-15 or for construction of other sources for which the actual emissions of any contaminant would be greater than fifty tons [45.36 metric tons] per year, one thousand pounds [453.59 kilograms] per day, or one hundred pounds [45.36 kilograms] per hour, whichever is most restrictive or for which the department has determined to have a major impact on air quality or for which a request for a public comment period has been received from the public. The department shall:

- a. Within thirty days of the receipt of the completed application, make available in at least one location in the county or counties in which the proposed project is to be located, a copy of its preliminary determinations and copies of or a summary of the information considered in making such preliminary determinations.
 - b. Publish notice to the public by prominent advertisement, within thirty days of the receipt of the completed application, in the region affected, of the opportunity for written comment on the preliminary determinations. The public notice ~~shall~~ must include the proposed location of the source.
 - c. Within thirty days of the receipt of the completed application, deliver a copy of the notice to the applicant and to officials and agencies having cognizance over the locations where the source will be situated as follows: State and local air pollution control agencies, the chief executive of the city and county; any comprehensive regional land use planning agency; the regional administrator of the United States environmental protection agency; and any state, federal land manager, or Indian governing body whose lands will be significantly affected by the source's emissions.
 - d. Allow thirty days for public comment.
 - e. Consider all public comments properly received, in making the final decision on the application.
 - f. Allow the applicant to submit written responses to public comments received by the department, within ten days of the receipt of such comments.
 - g. Take final action on the application within thirty days of the close of the public comment period.
7. **Denial of permit to construct.** If, after review of all information received, including public comment with respect to any proposed project, the department makes the determination of any one of subdivision a or b of subsection 5 in the negative, it shall deny the permit and notify the applicant, in writing, of the denial to issue a permit to construct.

If a permit to construct is denied, the construction, installation, or establishment of the new stationary source shall be unlawful. No permit to construct or modify ~~shall~~ may be granted if such construction, or modification, or installation, will result in a violation of these regulations or in a violation of the ambient air quality standards.

8. **Issuance of permit to construct.** If, after review of all information received, including public comment with respect to any proposed project, the department makes the determination of subdivision a or b of subsection 5 in the affirmative, the department shall issue a permit to construct. The permit may provide for conditions of operation as provided in subsection 9.
9. **Permit to construct - Conditions.** The department may impose any reasonable conditions upon a permit to construct, including conditions concerning:
 - a. Sampling, testing, and monitoring of the facilities or the ambient air or both.
 - b. Trial operation and performance testing.
 - c. Prevention and abatement of nuisance conditions caused by operation of the facility.
 - d. Recordkeeping and reporting.
 - e. Compliance with applicable rules and regulations in accordance with a compliance schedule.

The violation of any conditions so imposed may result in revocation or suspension of the permit or other appropriate enforcement action.

10. **Scope.**
 - a. The issuance of a permit to construct for any source ~~shall~~ does not affect the responsibility of an owner or operator to comply with applicable portions of a control strategy affecting that source.
 - b. A permit to construct shall become invalid if construction is not commenced within eighteen months after receipt of such permit, if construction is discontinued for a period of eighteen months or more; or if construction is not completed within a reasonable time. The department may extend the eighteen-month period upon a satisfactory showing that an extension is justified. This provision does not apply to the time period between construction of the approved phases of a phased construction project; each phase must commence construction within eighteen months of the projected and approved commencement date. In cases of major construction projects involving long lead times and substantial financial commitments, the department may provide by a condition to the permit a time period greater than eighteen months when such time extension is supported by sufficient documentation by the applicant.

11. Permit to construct application processing fee. Any construction, installation, or establishment of a new stationary source requiring a permit to construct under subsections 1 and 3 is required to pay a permit to construct application processing fee to the North Dakota state department of health as follows:

a- A filing fee of one hundred dollars plus an application processing fee based on actual processing costs, including computer data processing costs, incurred by the department for all sources subject to chapters 33-15-12, 33-15-13, and 33-15-15 and other sources which involve a major analysis the cost of which would exceed one hundred dollars, as determined by the department. The fee shall be paid on the following basis:

(1) The filing fee of one hundred dollars shall be submitted with the permit application.

(2) A record of all permit to construct application processing costs incurred shall be maintained by the department.

(3) Upon receipt of an application, the department will inform the applicant of the probable total processing fee and the billing schedule that will be utilized in processing the application. If the applicant chooses, the applicant may withdraw the application at this point without paying any processing fees.

(4) Following the end of the public comment period or the public hearing, or both, and after final determinations on the application have been made, a final statement will be sent to the applicant containing the remaining actual processing costs incurred by the department.

b- A filing fee of seventy-five dollars for all sources other than those sources designated in subdivision a shall be submitted with the permit application.

Transfer of permit to construct. To ensure the responsible owners or operators, or both, are identified, the holder of a permit to construct may not transfer such permit without prior approval of the department.

History: Amended effective March 1, 1980; February 1, 1982; October 1, 1987.

General Authority: NDCC 23-25-03, 28-32-02

Law Implemented: NDCC 23-25-04.1, 23-25-04.2

33-15-14-03. Permit to operate.

1. Permit to operate required.

- a. No person ~~shall~~ may operate or cause the routine operation of **a new an** installation or source designated in section 33-15-14-01 without applying for and obtaining, in accordance with this chapter, a permit to operate. Application for a permit to operate a new installation or source ~~shall~~ must be made at least thirty days prior to startup of routine operation.
- b. No person ~~shall~~ may operate or cause the operation of an installation or source in violation of any permit to operate, any condition imposed upon a permit to operate or in violation of this article.

2. Application for permit to operate.

- a. Application for a permit to operate ~~shall~~ must be made by the owner or operator thereof on forms furnished by the department.
- b. Each application for a permit to operate ~~shall~~ must be accompanied by such performance tests results, information, and records as may be required by the department to determine whether the requirements of this article will be met. Such information may also be required by the department at any time when the source is being operated to determine compliance with this article.
- c. Each application ~~shall~~ must be signed by the applicant, which signature shall constitute an agreement that the applicant will assume responsibility for the operation of the installation or source in accordance with this article.

3. Standards for granting permits to operate. No permit to operate ~~shall~~ may be granted unless the applicant shows to the satisfaction of the department that the source is in compliance with this article.

4. Performance testing. Before a permit to operate is granted, the applicant, if required by the department, shall conduct performance tests in accordance with methods and procedures required by this article or methods and procedures approved by the department. Such tests ~~shall~~ must be made at the expense

of the applicant. The department may monitor such tests and may also conduct performance tests.

5. Action on applications.

- a. The department shall act within thirty days after receipt of an application for a permit to operate a new installation or source, and within thirty days after receipt of an application to operate an existing installation or source, and shall notify the applicant, in writing, of the approval, conditional approval, or denial of the application.
- b. The department shall set forth in any notice of denial the reasons for denial. A denial ~~shall~~ must be without prejudice to the applicant's right to a hearing before the department or for filing a further application after revisions are made to meet objections specified as reasons for the denial.

6. Permit to operate - Conditions. The department may impose any reasonable conditions upon a permit to operate, including conditions concerning:

- a. Sampling, testing, and monitoring of the facilities or ambient air or both.
- b. Trial operation and performance testing.
- c. Prevention and abatement of nuisance conditions caused by operation of the facility.
- d. Recordkeeping and reporting.
- e. Compliance with applicable rules and regulations in accordance with a compliance schedule.

7. Suspension or revocation of permit to operate.

- a. The department may suspend or revoke a permit to operate for violation of this article and any permit conditions.
- b. Suspension or revocation of a permit to operate shall become final ten days after ~~service of~~ servicing notice on the holder of the permit.
- c. A permit to operate which has been revoked pursuant to this article ~~shall~~ must be surrendered forthwith to the department.
- d. No person ~~shall~~ may operate or cause the operation of an installation or source if the department denies or revokes a permit to operate.

8. **Transfer of permit to operate.** The holder of a permit to operate may not transfer it without the prior approval of the department.

9. **Renewal of permit to operate.**

a. Every permit to operate issued by the department after February 9, 1976, shall become void upon the third anniversary of its issuance. Applications for renewal of such permits shall must be submitted sixty days prior to such anniversary date. The department shall approve or disapprove such application within sixty days.

b. The department may amend permits issued prior to February 9, 1976, so as to provide for voidance upon the third anniversary of its issuance.

10. **Annual fee-**

a. The owner or operator of each installation operating under a permit, except state-owned installations, shall pay an annual permit fee based on the following table-

Category	Annual Actual Emissions tons/yr	Annual Cost
I	±15000	\$1,500
II	10000 - 15000	1,000
III	2000 - 9999	750
IV	400 - 1999	500
V	100 - 399	200
VI	±100	100
VII	Minor sources as designated by the department	No charge

b. The following activities conducted by the department are not included in the annual costs and will be charged to affected sources based on the actual costs incurred by the department-

(1) Observation of source or performance specification testing, or both-

(2) Audits of source operated ambient air monitoring networks-

An accounting of the actual costs incurred under this subdivision shall accompany the notice of the annual permit fee-

- e- All sources shall be categorized by the aggregate emissions from each installation for the emissions of hydrocarbons, particulate matter, sulfur dioxide, carbon monoxide, and nitrogen oxides, except in the case of boilers with heat inputs greater than or equal to 250×10^6 Btu/hr where the fee shall be assessed per boiler. The department shall determine the emission factors applicable to each permit or group of permits based on representative source tests, "AP-42, Compilation of Air Pollution Emission Factors" or other more reliable data. "Emission factor" as used in this section means the amount of an air contaminant emitted per unit of time. The annual actual emissions shall be based on the emission factor and the hours of operation per year from the annual emission inventory report.
- d- A notice of the annual permit fee due shall be sent to the permittee by the department. The fee shall be due sixty days following receipt of such notice.
- e- The minor sources for Category VII shall be designated by the department on a case-by-case basis.
- f- Any portable emission sources not operating in North Dakota during the calendar year shall be exempt from paying the annual permit fee.

History: Amended effective February 1, 1982; October 1, 1987.

General Authority: NDCC 28-32-02

Law Implemented: NDCC 23-25-04.1

33-15-14-04. Common provisions applicable to both permit to construct and permit to operate Permit fees.

- 1- Exemptions. A permit to construct and a permit to operate shall not be required for the following stationary sources:
 - a- Maintenance, structural changes or minor repair of process equipment, fuel-burning equipment, control equipment, or incinerators which do not change capacity of such process equipment, fuel-burning equipment, control equipment, or incinerators and which do not involve any change in the quality, nature, or quantity, of emissions therefrom.

- b. Fuel-burning equipment, other than smokehouse generators, which have a heat input of not more than ten million Btus per hour and burn only gaseous fuel containing not more than two and five-tenths grain hydrogen sulfide per one hundred standard cubic feet {5.7 grams per one hundred standard cubic meters}, or have a heat input of not more than ten million Btus per hour and burn distillate oil as a fuel, or have a heat input of not more than one million Btus per hour and burn residual oil as a fuel, or have a heat input of not more than three hundred fifty thousand Btus per hour and burn solid fuel.
- e. Internal combustion engines with less than five hundred brake horsepower.
- d. Bench scale laboratory equipment used exclusively for chemical or physical analysis or experimentation.
- e. Portable brazing, soldering, or welding equipment.
- f. The following equipment:
 - (1) Comfort air conditioners or comfort ventilating systems which are not designed and not intended to be used to remove emissions generated by or released from specific units or equipment.
 - (2) Water cooling towers and water cooling ponds unless used for evaporative cooling of process water, or for evaporative cooling of water from barometric jets or barometric condensers or used in conjunction with an installation requiring a permit.
 - (3) Equipment used exclusively for steam cleaning.
 - (4) Grain, metal, plastic, or mineral extrusion presses.
 - (5) Porcelain enameling furnaces or porcelain enameling drying ovens.
 - (6) Unheated solvent dispensing containers or unheated solvent rinsing containers of sixty gallons {227.12 liters} capacity or less.

(7) Equipment used for hydraulic or hydrostatic testing.

g- The following equipment or any exhaust system or collector serving exclusively such equipment-

(1) Blast cleaning equipment using a suspension of abrasive in water.

(2) Bakery ovens where the products are edible and intended for human consumption.

(3) Kilns for firing ceramic ware, heated exclusively by gaseous fuels, singly or in combinations, and electricity.

(4) Confection cookers where the products are edible and intended for human consumption.

(5) Drop hammers or hydraulic presses for forging or metal working.

(6) Die casting machines.

(7) Photographic process equipment through which an image is reproduced upon material through the use of sensitized radiant energy.

(8) Equipment for drilling, carving, cutting, routing, turning, sawing, planing, spindle sanding, or disc sanding of wood or wood products, which is located within a facility that does not vent to the outside air.

(9) Equipment for surface preparation of metals by use of aqueous solutions, except for acid solutions.

(10) Equipment for washing or drying products fabricated from metal or glass, provided, that no volatile organic materials are used in the process and that no oil or solid fuel is burned.

(11) Laundry dryers, extractors, or tumblers for fabrics cleaned with only water solutions of bleach or detergents.

(12) Containers, reservoirs, or tanks used exclusively for electrolytic plating with, or electrolytic polishing of, or electrolytic stripping of the following metals: brass, bronze, cadmium, copper,

iron, lead, nickel, tin, zinc, and precious metals.

h. Natural draft hoods or natural draft ventilators.

i. Containers, reservoirs, or tanks used exclusively for:

(1) Dipping operations for coating objects with oils, waxes, or greases, where no organic solvents are used.

(2) Dipping operations for applying coatings of natural or synthetic resins which contain no organic solvents.

(3) Storage of butane, propane, or liquefied petroleum or natural gas.

(4) Storage of lubricating oils.

(5) Storage of Nos. 1, 2, 4, 5, and 6 fuel oil, nonmilitary jet engine fuel, and crude petroleum or condensate which is stored, processed, or treated at a drilling and production facility prior to custody transfer and does not contain dissolved hydrogen sulfide.

(6) Storage of volatile organic compounds in any stationary tank, reservoir, or other container of forty thousand gallons {151,416.47 liters} or less.

j. Gaseous fuel-fired or electrically-heated furnaces for heat treating glass or metals, the use of which does not involve molten materials.

k. Crucible furnaces, pot furnaces, or induction furnaces, with a capacity of one thousand pounds {453.59 kilograms} or less each, unless otherwise noted, in which no sweating or distilling is conducted, nor any fluxing conducted utilizing chloride, fluoride, or ammonium compounds, and from which only the following metals are poured or in which only the following metals are held in a molten state:

(1) Aluminum or any alloy containing over fifty percent aluminum, provided, that no gaseous chlorine compounds, chlorine, aluminum chloride, or aluminum fluoride are used.

- (2) Magnesium or any alloy containing over fifty percent magnesium.
- (3) Lead or any alloy containing over fifty percent lead, in a furnace with a capacity of five hundred fifty pounds {249.48 kilograms} or less.
- (4) Tin or any alloy containing over fifty percent tin.
- (5) Zinc or any alloy containing over fifty percent zinc.
- (6) Copper.
- (7) Precious metals.

- l. Open burning activities within the scope of section 33-15-04-02.
- m. Flares used to indicate some danger to the public.
- n. Other sources of minor significance as determined by the department.

2. Performance and emission testing.

- a. Emission tests or performance tests or both shall be conducted by the owner or operator of a facility and data reduced in accordance with the applicable procedure, limitations, standards, and test methods established by this article. Such tests shall be conducted under the owner's or operator's permit to construct or operate and such permit is subject to the faithful completion of the test in accordance with this article.
- b. All dates and periods of trial operation for the purpose of performance or emission testing pursuant to a permit to construct, and all dates of performance or emission testing pursuant to a permit to operate, must be approved in advance by the department. Trial operation shall cease if the department determines, on the basis of the test results, that continued operation will result in the violation of this article. Upon completion of any test conducted under a permit to construct, the department may order the cessation of the operation of the tested equipment or facility until such time as a

permit to operate has been issued by the department.

e. Upon review of the performance data resulting from any test, the department may require the installation of such additional control equipment as will bring the facility into compliance with this article.

d. Nothing in this article shall be construed to prevent the department from conducting any test upon its own initiative, or from requiring the owner or operator to conduct any test at such time as the department may determine.

3. Responsibility to comply.

a. Possession of a permit to construct or a permit to operate shall not relieve any person of the responsibility to comply with this article.

b. The exemption of any stationary source from the requirements of a permit to construct or a permit to operate by reason of inclusion in subsection 1 shall not relieve the owner or operator of such source of the responsibility to comply with any other applicable portions of this article.

4. Portable sources. Sources which are designed to be portable and which are operated at temporary jobsites across the state shall not be considered a new source by virtue of location changes. One application for a permit to operate any portable source shall be filed in accordance with this chapter and subsequent applications are not required for each temporary jobsite. The permit to operate issued by the department shall be conditioned by such specific requirements as the department deems appropriate to carry out the provisions of sections 33-15-01-07 and 33-15-01-15.

5. Registration of exempted stationary sources. The department may require that the owner or operator of any stationary source exempted under subsection 1 shall register the source with the department within such time limits and on such forms as the department may prescribe.

6. Extensions of time. The department may extend any of the time periods specified in subsections 4, 5, and 6 of section 33-15-14-02 and subsection 5 of

section 33-15-14-03 upon notification of the applicant by the department.

7. Amendment of permits. The department may, when the public interest requires, modify any condition of a permit to operate or permit to construct. Modification shall be made only upon the department's own motion and the procedure shall, at a minimum, conform to any requirements of federal and state law. In the event that the modification would have major impact or be of concern to the public, the department will provide:
- a. Reasonable notice to the public, in the area to be affected, of the opportunity for comment on the proposed modification at a public hearing as well as written public comment.
 - b. A minimum of a thirty-day period for written public comment with a public hearing during that thirty-day period.
 - c. Consideration by the department of all comments received in its order for modification.

The department may require the submission of such maps, plans, specifications, emission information and compliance schedules as it deems necessary prior to the issuance of an order for modification. It is the intention of the department that this subsection shall apply only in those instances allowed by federal rules and regulations and only in those instances in which the granting of a variance pursuant to section 33-15-01-06 and enforcement of existing permit conditions are manifestly inappropriate.

1. Permit to construct. Any construction, installation, or establishment of a new stationary source requiring a permit to construct under subsections 1 and 3 of section 33-15-14-02, is required to pay a permit to construct application processing fee to the North Dakota state department of health and consolidated laboratories. A filing fee of one hundred fifty dollars plus an application processing fee based on actual processing costs, including computer data processing costs, incurred by the department for all sources which involve a major analysis the cost of which would exceed one hundred fifty dollars, as determined by the department. The fee must be paid on the following basis:
- a. The filing fee of one hundred fifty dollars must be submitted with the permit application.

- b. A record of all permits to construct application processing costs incurred must be maintained by the department.
- c. Upon request, the department will inform the applicant of the probable total processing fee and the billing schedule that will be utilized in processing the application. If the applicant chooses, the applicant may withdraw the application at this point without paying any processing fees.
- d. Following the end of the public comment period or the public hearing, or both, and after final determinations on the application have been made, a final statement will be sent to the applicant containing the remaining actual processing costs incurred by the department.

2. Permit to operate.

- a. The owner or operator of each installation operating under a permit, except state-owned installations, shall pay an annual permit fee based on the following table:

<u>Classification</u>	<u>Annual Cost</u>
A1 ≥ 15000 tons/year emissions	\$1,500
A1 ≤ 15000 tons/year emissions	1,100
A2	300
A1-3	100
Other	100
Ambient Monitor Site	400
Ambient Hi-Vol Station	150
Exempt	NC

The following criteria is used in classifying sources:

- A1: A source that emits more than one hundred tons per year of any pollutant regardless of whether pollution controls are operating, and is scheduled to be inspected annually.
- A2: A source that emits less than one hundreds tons per year of any pollutant but has the potential to emit more than one hundred tons per year without controls, and is scheduled to be inspected at least once every two years.
- A1-3: Same as A1 except that the source is scheduled to be inspected at least once every three years.
- Other: As designated by the department.

Exempt: As designated by the department.

Ambient monitoring charges for sources operating both ambient air monitoring sites and hi-vol stations at the same site, will be assessed a maximum of four hundred dollars per site.

b. The following activities conducted by the department are not included in the annual costs and will be charged to affected sources based on the actual costs incurred by the department:

(1) Observation of source or performance specification testing, or both.

(2) Audits of source operated ambient air monitoring networks.

An accounting of the actual costs incurred under this subdivision must accompany the notice of the annual permit fee.

c. All sources shall be classified taking into consideration the emissions from each installation, for the emissions of hydrocarbons, particulate matter, sulfur dioxide, carbon monoxide, and nitrogen oxides. In the case of boilers with heat inputs greater than or equal to 250×10^6 Btu/hr the fee must be assessed per boiler. The department shall determine the emission factors applicable to each permit or group of permits based on representative source tests, "AP-42, Compilation of Air Pollution Emission Factors" or other more reliable data. "Emission factor" as used in this section means the amount of an air contaminant emitted per unit of time. The annual actual emissions shall be based on the emission factor and the hours of operation per year from the annual emission inventory report.

d. A notice of the annual permit fee due must be sent to the permittee by the department. The fee is due sixty days following receipt of such notice.

e. The classification of "Other" and "Exempt" must be designated by the department on a case-by-case basis.

3. Any source that initiates operation under a permit to construct prior to receiving a permit to operate is subject to the fees outlined in subsection 2.

History: Amended effective October 1, 1987.

General Authority: NDCC 28-32-02

Law Implemented: NDCC 23-25-04.1

33-15-14-05. Common provisions applicable to both permit to construct and permit to operate.

1. Exemptions. A permit to construct and a permit to operate are not required for the following stationary sources:
 - a. Maintenance, structural changes, or minor repair of process equipment, fuel-burning equipment, control equipment, or incinerators which do not change capacity of such process equipment, fuel-burning equipment, control equipment, or incinerators and which do not involve any change in the quality, nature, or quantity, of emissions therefrom.
 - b. Fuel-burning equipment, other than smokehouse generators, which meet all of the following criteria:
 - (1) The aggregate heat input per unit does not exceed ten million British thermal units per hour.
 - (2) The total aggregate heat input from all equipment does not exceed ten million British thermal units per hour.
 - (3) The emissions from all equipment do not exceed twenty-five tons [22.67 metric tons] per year of any air contaminant.
 - c. Any single internal combustion engine with less than five hundred brake horsepower, or multiple engines with a combined brake horsepower rating less than five hundred brake horsepower.
 - d. Bench scale laboratory equipment used exclusively for chemical or physical analysis or experimentation.
 - e. Portable brazing, soldering, or welding equipment.
 - f. The following equipment:
 - (1) Comfort air conditioners or comfort ventilating systems which are not designed and not intended to be used to remove emissions generated by or released from specific units or equipment.
 - (2) Water cooling towers and water cooling ponds unless used for evaporative cooling of process water, or for evaporative cooling of water from barometric jets or barometric condensers or used in conjunction with an installation requiring a permit.
 - (3) Equipment used exclusively for steam cleaning.

- (4) Grain, metal, plastic, or mineral extrusion presses.
 - (5) Porcelain enameling furnaces or porcelain enameling drying ovens.
 - (6) Unheated solvent dispensing containers or unheated solvent rinsing containers of sixty gallons [227.12 liters] capacity or less.
 - (7) Equipment used for hydraulic or hydrostatic testing.
- g. The following equipment or any exhaust system or collector serving exclusively such equipment:
- (1) Blast cleaning equipment using a suspension of abrasive in water.
 - (2) Bakery ovens where the products are edible and intended for human consumption.
 - (3) Kilns for firing ceramic ware, heated exclusively by gaseous fuels, singly or in combinations, and electricity.
 - (4) Confection cookers where the products are edible and intended for human consumption.
 - (5) Drop hammers or hydraulic presses for forging or metal working.
 - (6) Die casting machines.
 - (7) Photographic process equipment through which an image is reproduced upon material through the use of sensitized radiant energy.
 - (8) Equipment for drilling, carving, cutting, routing, turning, sawing, planing, spindle sanding, or disc sanding of wood or wood products, which is located within a facility that does not vent to the outside air.
 - (9) Equipment for surface preparation of metals by use of aqueous solutions, except for acid solutions.
 - (10) Equipment for washing or drying products fabricated from metal or glass; provided, that no volatile organic materials are used in the process and that no oil or solid fuel is burned.
 - (11) Laundry dryers, extractors, or tumblers for fabrics cleaned with only water solutions of bleach or detergents.

(12) Containers, reservoirs, or tanks used exclusively for electrolytic plating with, or electrolytic polishing of, or electrolytic stripping of the following metals: brass, bronze, cadmium, copper, iron, lead, nickel, tin, zinc, and precious metals.

h. Natural draft hoods or natural draft ventilators.

i. Containers, reservoirs, or tanks used exclusively for:

(1) Dipping operations for coating objects with oils, waxes, or greases, where no organic solvents are used.

(2) Dipping operations for applying coatings of natural or synthetic resins which contain no organic solvents.

(3) Storage of butane, propane, or liquefied petroleum or natural gas.

(4) Storage of lubricating oils.

(5) Storage of petroleum liquids except those containers, reservoirs, or tanks subject to the requirements of chapter 33-15-12.

j. Gaseous fuel-fired or electrically heated furnaces for heat treating glass or metals, the use of which does not involve molten materials.

k. Crucible furnaces, pot furnaces, or induction furnaces, with a capacity of one thousand pounds [453.59 kilograms] or less each, unless otherwise noted, in which no sweating or distilling is conducted, nor any fluxing conducted utilizing chloride, fluoride, or ammonium compounds, and from which only the following metals are poured or in which only the following metals are held in a molten state:

(1) Aluminum or any alloy containing over fifty percent aluminum; provided, that no gaseous chlorine compounds, chlorine, aluminum chloride, or aluminum fluoride are used.

(2) Magnesium or any alloy containing over fifty percent magnesium.

(3) Lead or any alloy containing over fifty percent lead, in a furnace with a capacity of five hundred fifty pounds [249.48 kilograms] or less.

(4) Tin or any alloy containing over fifty percent tin.

(5) Zinc or any alloy containing over fifty percent zinc.

(6) Copper.

(7) Precious metals.

1. Open burning activities within the scope of section 33-15-04-02.

m. Flares used to indicate some danger to the public.

n. Other sources of minor significance as determined by the department.

2. Performance and emission testing.

a. Emission tests or performance tests or both shall be conducted by the owner or operator of a facility and data reduced in accordance with the applicable procedure, limitations, standards, and test methods established by this article. Such tests must be conducted under the owner's or operator's permit to construct or operate and such permit is subject to the faithful completion of the test in accordance with this article.

b. All dates and periods of trial operation for the purpose of performance or emission testing pursuant to a permit to construct, and all dates of performance or emission testing pursuant to a permit to operate, must be approved in advance by the department. Trial operation shall cease if the department determines, on the basis of the test results, that continued operation will result in the violation of this article. Upon completion of any test conducted under a permit to construct, the department may order the cessation of the operation of the tested equipment or facility until such time as a permit to operate has been issued by the department.

c. Upon review of the performance data resulting from any test, the department may require the installation of such additional control equipment as will bring the facility into compliance with this article.

d. Nothing in this article may be construed to prevent the department from conducting any test upon its own initiative, or from requiring the owner or operator to conduct any test at such time as the department may determine.

3. Responsibility to comply.

- a. Possession of a permit to construct or a permit to operate does not relieve any person of the responsibility to comply with this article.
 - b. The exemption of any stationary source from the requirements of a permit to construct or a permit to operate by reason of inclusion in subsection 1 does not relieve the owner or operator of such source of the responsibility to comply with any other applicable portions of this article.
4. Portable sources. Sources which are designed to be portable and which are operated at temporary jobsites across the state may not be considered a new source by virtue of location changes. One application for a permit to operate any portable source must be filed in accordance with this chapter and subsequent applications are not required for each temporary jobsite. The permit to operate issued by the department shall be conditioned by such specific requirements as the department deems appropriate to carry out the provisions of sections 33-15-01-07 and 33-15-01-15.
 5. Registration of exempted stationary sources. The department may require that the owner or operator of any stationary source exempted under subsection 1 shall register the source with the department within such time limits and on such forms as the department may prescribe.
 6. Extensions of time. The department may extend any of the time periods specified in subsections 4, 5, and 6 of section 33-15-14-02 and subsection 5 of section 33-15-14-03 upon notification of the applicant by the department.
 7. Amendment of permits. The department may, when the public interest requires, modify any condition of a permit to operate or permit to construct. Modification shall be made only upon the department's own motion and the procedure shall, at a minimum, conform to any requirements of federal and state law. In the event that the modification would have a significant impact as defined in chapter 33-15-15 or be of concern to the public, the department will provide:
 - a. Reasonable notice to the public, in the area to be affected, of the opportunity for comment on the proposed modification at a public hearing as well as written public comment.
 - b. A minimum of a thirty-day period for written public comment with a public hearing during that thirty-day period.
 - c. Consideration by the department of all comments received in its order for modification.

The department may require the submission of such maps, plans, specifications, emission information, and compliance schedules as it deems necessary prior to the issuance of an order for modification. It is the intention of the department that this subsection shall apply only in those instances allowed by federal rules and regulations and only in those instances in which the granting of a variance pursuant to section 33-15-01-06 and enforcement of existing permit conditions are manifestly inappropriate.

History: Effective October 1, 1987.

General Authority: NDCC 28-32-02

Law Implemented: NDCC 23-25-04.1

33-15-15-01. General provisions.

1. Definitions. For the purposes of this chapter:

a. "Actual emissions" means the actual rate of emissions of a contaminant from an ~~emission~~ emissions unit, as determined in accordance with paragraphs 1 through 3.

(1) In general, actual emissions as of a particular date ~~shall~~ must equal the average rate, in tons per year, at which the unit actually emitted the contaminant during a two-year period which precedes the particular date and which is representative of normal source operation. The department may allow the use of a different time period upon a determination that it is more representative of normal source operation. Actual emissions ~~shall~~ must be calculated using the unit's actual operating hours, production rates, and types of materials processed, stored, or combusted during the selected time period.

(2) The department may presume that source-specific allowable emissions for the unit are equivalent to the actual emissions of the unit.

(3) For any emissions unit which has not begun normal operations on the particular date, actual emissions ~~shall~~ must equal the potential to emit of the unit on that date.

b. "Allowable emissions" means the emission rate of a stationary source calculated using the maximum rated capacity of the source and the most stringent of the following:

(1) Applicable standards of performance or emission limitations as set forth in this article.

(2) The emission rate specified as a an enforceable permit condition. Annual allowable emissions shall be based on the maximum annual rated capacity of the source, unless the source is subject to enforceable permit conditions which limit the operating rate or hours of operation, or both. Enforceable permit conditions on the type or amount of materials combusted or processed may be used in determining the allowable emission rate of a source.

c. "Baseline area" means any intrastate area (any and every part thereof) designated as attainment or unclassifiable under section 107 (d)(1)(D) or (E) of the Federal Clean Air Act [Pub. L. 95-95] in which the major source or major modification establishing the baseline date would construct or would have an air quality impact equal to or greater than one $\mu\text{g}/\text{m}^3$ (annual average) of the contaminant for which the baseline date is established. North Dakota is divided into two intrastate areas under section 107 (d)(1)(D) or (E) of the Federal Clean Air Act [Pub. L. 95-95]: the Cass County portion of Region No. 130, the Metropolitan Fargo-Moorhead Interstate Air Quality Control Region; and Region No. 172, the North Dakota Intrastate Air Quality Control Region (the remaining fifty-two counties).

d. (1) "Baseline concentration" means that ambient concentration level which exists in the baseline area at the time of the applicable baseline date. A baseline concentration is determined for each contaminant for which a baseline date is established and includes:

(a) The actual emissions representative of sources in existence on the applicable baseline date, except as provided in paragraph 2;

(b) The allowable emissions of major stationary sources which commenced construction before January 6, 1975, but were not in operation by the applicable baseline date.

(2) The following will not be included in the baseline concentration and will affect the applicable maximum allowable increases:

(a) Actual emissions from any major stationary source on which construction commenced after January 6, 1975; and

- (b) Actual emissions increases and decreases at any stationary source occurring after the baseline date.
- e. (1) "Baseline date" means the earliest date after August 7, 1977, on which the first complete application under this chapter is submitted by a major stationary source or major modification subject to the requirements of this chapter.
- (2) The baseline date is established for each contaminant for which increments or other equivalent measures have been established if:
- (a) The area in which the proposed source or modification would construct is designated as attainment or unclassifiable under section 107 (d)(1)(D) or (E) of the Federal Clean Air Act [Pub. L. 95-95] for the contaminant on the date of its complete application under this chapter; and
- (b) In the case of a major stationary source, the contaminant would be emitted in significant amounts or, in the case of a major modification, there would be a significant net emissions increase of the contaminant.
- (3) The department shall provide a list of baseline dates for each contaminant for each baseline area.
- f. "Begin actual construction" means, in general, initiation of physical onsite construction activities on an emissions unit which are of a permanent nature. Such activities include, but are not limited to, installation of building supports and foundations, laying of underground pipework, and construction of permanent storage structures. With respect to a change in method of operation this term refers to those onsite activities, other than preparatory activities, which mark the initiation of the change.
- g. "Best available control technology" means an emission limitation (including a visible emission standard) based on the maximum degree of reduction ~~of~~ for each contaminant subject to regulation under North Dakota Century Code chapter 23-25 which would be emitted from ~~or~~ which results from any proposed major stationary source or major modification which the department, on a case-by-case basis, taking into account energy, environmental, and economic impacts and other costs, determines is achievable for such source or modification through application of production processes or available methods, systems, and techniques including fuel cleaning

or treatment or innovative fuel combustion techniques for control of such contaminant. In no event ~~shall~~ may application of "best available control technology" result in emissions of any contaminant which would exceed the emissions allowed by any applicable standards of performance under chapters 33-15-12 and 33-15-13. If the department determines that technological or economic limitations on the application of measurement methodology to a particular ~~class of sources~~ emissions unit would make the imposition of an emission standard infeasible, ~~the department may instead prescribe~~ a design, equipment, work practice or operational standard, or combination thereof, requiring may be prescribed instead to satisfy the requirement for the application of best available control technology. Such standard ~~shall~~ must, to the degree possible, set forth the ~~emission~~ emissions reduction achievable by implementation of such design, equipment, work practice, or operation, and shall provide for compliance by means which achieve equivalent results.

- h. "Commence" as applied to construction of a major stationary source or major modification means that the owner or operator has obtained all necessary preconstruction ~~approvals or permits required by federal, state, or local air pollution emissions and air quality laws or regulations~~ and either has (1) begun, or cause caused to begin, a continuous program of ~~physical actual~~ onsite construction of the source, to be completed within a reasonable time; or (2) entered into binding agreements or contractual obligations, which cannot be canceled or modified without substantial loss to the owner or operator, to undertake a program of construction of the source to be completed within a reasonable time.
- i. "Complete" means, in reference to an application for a permit, that the application contains all of the information necessary for processing the application. Designating an application complete for purposes of permit processing does not preclude the reviewing authority from requesting or accepting any additional information.
- j. "Construction" means any physical change or change in the method of operation (including fabrication, erection, installation, demolition, or modification of an ~~emission~~ emissions unit) which would result in a change in actual emissions.
- k. "Emissions unit" means any part of a stationary source which emits or would have the potential to emit any air contaminant regulated under North Dakota Century Code chapter 23-25.

- l. "Enforceable" means all limitations and conditions which are enforceable by the department pursuant to this article and any applicable requirements within the North Dakota state implementation plan.
- m. "Facility, building, structure, or installation" means all of the air contaminant emitting activities which belong to the same industrial grouping, are located on one or more contiguous or adjacent properties, and are under the control of the same person (or persons under common control). Air contaminant emitting activities shall be considered as part of the same industrial grouping if they belong to the same "major group" (i.e., which have the same two-digit code) as described in the Standard Industrial Classification Manual, 1972, as amended by the 1977 Supplement (U.S. Government Printing Office stock numbers 4101-0066 and 003-005-00176-0, respectively).
- n. "Federal land manager" means, with respect to any lands in the United States, the secretary of the department with authority over such lands.
- o. "Fugitive emissions" means those emissions which could not reasonably pass through a stack, chimney, vent, or other functionally equivalent opening.
- p. "High terrain" means any area having an elevation that exceeds the plume centerline (effective stack height) or is nine hundred feet [271.32 meters] or more above the base of the stack of a facility, whichever is less source.
- q. "Indian governing body" means the governing body of any tribe, band, or group of Indians subject to the jurisdiction of the United States and recognized by the United States as possessing power of self-government.
- r. "Indian reservation" means any federally recognized reservation established by treaty, agreement, executive order, or Act of Congress.
- s. "Innovative control technology" means any system of air pollution control that has not been adequately demonstrated in practice, but would have a substantial likelihood of achieving greater continuous emissions reduction than any control system in current practice or of achieving at least comparable reductions at lower cost in terms of energy, economics, or nonair quality environmental impacts.
- t. "Low terrain" means any area other than high terrain.

~~e-~~ u. "Major modification" means any physical change in, or change in the method of operation of a major stationary source that would result in a significant net emissions increase of any air contaminant subject to regulation under North Dakota Century Code chapter 23-25.

(1) Any net emissions increase that is significant for volatile organic compounds ~~shall~~ must be considered significant for ozone.

(2) A physical change or change in the method of operation ~~shall~~ does not include:

(a) Routine maintenance, repair, and replacement;

(b) Use of an alternate fuel or raw material by reason of any order under sections 2(a) and (b) of the Energy Supply and Environmental Coordination Act of 1974 (or any superseding legislation) or by reason of a natural gas curtailment plan pursuant to the Federal Power Act;

(c) Use of an alternate fuel or raw material by a stationary source which:

[1] The source was capable of accommodating before January 6, 1975, unless such change would be prohibited under any state enforceable permit condition which was established after January 6, 1975, pursuant to this chapter or under regulations approved pursuant to North Dakota Century Code chapter 23-25.

[2] The source is approved to use under any permit issued under regulations approved pursuant to North Dakota Century Code chapter 23-25.

(d) An increase in the hours of operation or in the production rate, unless such change would be prohibited under any enforceable permit condition which was established after January 6, 1975, pursuant to this chapter under regulations approved pursuant to North Dakota Century Code chapter 23-25.

(e) Any change in ownership of a stationary source.

(f) Use of an alternative fuel by reason of an order or rule under section 125 of the Federal Clean Air Act [Pub. L. 95-95].

- (g) Use of an alternative fuel at a steam generating unit to the extent that the fuel is generated from municipal solid waste.

u- v. "Major stationary source" means any:

- (1) Any of the following stationary sources of air contaminants which emit, or have the potential to emit, one hundred tons [90,718.17 kilograms] per year or more of any air contaminant regulated under North Dakota Century Code chapter 23-25 ~~from the following types of stationary sources-~~ ~~Fossil-fuel fired steam electric plants of more than two hundred fifty million British thermal units per hour heat input;~~ coal cleaning plants (with thermal dryers), kraft pulp mills, portland cement plants, primary zinc smelters, iron and steel mills, primary aluminum ore reduction plants, primary copper smelters, municipal incinerators capable of charging more than two hundred fifty tons [226,796.19 kilograms] of refuse per day, hydrofluoric, sulfuric, and nitric acid plants, petroleum refineries, lime plants, phosphate rock processing plants, coke oven batteries, sulfur recovery plants, carbon black plants (furnace process), primary lead smelters, fuel conversion plants, sintering plants, secondary metal production facilities, chemical process plants, fossil-fuel boilers and fossil fuel-fired steam electric plants (or combinations thereof) of more than two hundred fifty million British thermal units per hour heat input, petroleum storage and transfer facilities units with a total storage capacity exceeding three hundred thousand barrels, taconite ore processing facilities, glass fiber processing plants, and charcoal production facilities.
- (2) Notwithstanding the source sizes specified above in paragraph 1, such term also includes any stationary source which emits, or has the potential to emit, two hundred fifty tons [226,796.19 kilograms] per year or more of any air contaminant regulated under North Dakota Century Code chapter 23-25 or as outlined in paragraph 3.
- (3) Any physical change that would occur at a stationary source not otherwise qualifying under paragraph 1 as a major stationary source, if the changes would constitute a major stationary source by itself.
- (4) A major source that is major for volatile organic compounds shall be considered major for ozone.

(5) The fugitive emissions of a stationary source may not be included in determining for any of the purposes of this subdivision whether it is a major stationary source unless the source belongs to one of the categories of stationary sources in paragraph 1 and any other stationary source category which as of August 7, 1980, is being regulated under section 111 or 112 of the Federal Clean Air Act.

v- w. "Necessary preconstruction ~~approvals or~~ permits" means those permits ~~or approvals~~ required by the department as a precondition to undertaking any activity under (1) or (2) of subdivision h under this article.

w- x. "Net emissions increase" means the amount by which the sum of the following exceeds zero:

(1) Any increase in actual emissions from a particular physical change or change in the method of operation at a stationary source; and

(2) Any other increases and decreases in actual emissions at the source that are contemporaneous with the particular change and are otherwise creditable.

(a) An increase or decrease in actual emissions is contemporaneous with the increase from the particular change only if it occurs within a reasonable period (to be specified by the department) before the date that the increase from the particular change occurs. between:

[1] The date five years before construction on the particular change commences; and

[2] The date that the increase from the particular change occurs.

(b) An increase or decrease in actual emissions is creditable only if the department has not relied on it in issuing a permit for the source under this article, which permit is in effect when the increase in actual emissions from the particular change occurs.

(c) An increase or decrease in actual emissions of sulfur dioxide or particulate matter which occurs before the applicable baseline date is creditable only if it is required to be considered in calculating the amount of maximum allowable increases remaining available.

- (d) An increase in actual emissions is creditable only to the extent that the new level of actual emissions exceeds the old level.
- (e) A decrease in actual emissions is creditable only to the extent that:
 - [1] The old level of actual emissions or the old level of allowable emissions, whichever is lower, exceeds the new level of actual emissions;
 - [2] It is enforceable at and after the time that actual construction on the particular change begins; and
 - [3] It has approximately the same qualitative significance for public health and welfare as that attributed to the increase from the particular change.
- (f) An increase that results from a physical change at a source occurs when the emissions unit on which construction occurred becomes operational and beings begins to emit a particular pollutant. Any replacement unit that requires shakedown becomes operational only after a reasonable shakedown period, not to exceed one hundred eighty days.

x- y. "Potential to emit" means the maximum capacity of a stationary source to emit an air contaminant under its physical and operational design. Any physical or operational limitation on the capacity of the source to emit a pollutant, including air pollution control equipment and restrictions on hours of operation or on the type or amount of material combusted, stored, or processed, ~~shall~~ must be treated as part of its design if the limitation or the effect it would have on emissions is enforceable. Secondary emissions do not count in determining the potential to emit of a stationary source.

y- z. "Secondary emissions" means emissions which occur as a result of the construction or operation of a major stationary source or major modification, but do not come from the major stationary source or major modification itself. Secondary emissions must be specific, well-defined, quantifiable, and impact the same general areas as the major stationary source or major modification which causes the secondary emissions. Secondary emissions may include, ~~but are not limited to:~~

- (1) Emissions from trains coming to or from the new or modified stationary source, and
- (2) Emissions from any offsite support facility which would not otherwise be constructed or increase its emissions except as a result of the construction or operation of the major stationary source or major modification. Secondary emissions do not include any emissions which come directly from a mobile source.

aa. "Significant" means:

- (1) In reference to a net emissions increase or the potential of a source to emit any of the following air contaminants, a rate of emissions that would equal or exceed any of the following rates:

Air Contaminant and Emissions Rate

Carbon monoxide: 100 tons per year
 Nitrogen oxides: 40 tons per year
 Sulfur dioxide: 40 tons per year
 Particulate matter: 25 tons per year
 Ozone: 40 tons per year of volatile organic compounds
 Lead: 0.6 ton per year
 Asbestos: 0.007 ton per year
 Beryllium: 0.0004 ton per year
 Mercury: 0.1 ton per year
 Vinyl chloride: 1 ton per year
 Fluorides: 3 tons per year
 Sulfuric acid mist: 7 tons per year
 Hydrogen sulfide (H₂S): 10 tons per year
 Total reduced sulfur (including H₂S):
 10 tons per year
 Reduced sulfur compounds (including H₂S): 10 tons per year

- (2) In reference to a net emissions increase or the potential of a source to emit an air contaminant subject to regulation under the North Dakota Century Code chapter 23-25 that paragraph 1 does not list, any emissions rate.
- (3) Notwithstanding paragraph 1, "significant" means any emissions rate or any net emissions increase associated with a major stationary source or major modification, which would construct within ten kilometers [6.21 meters] of a class I area, and have an impact on such area equal to or greater than one ug/m³ (24-hour average).

aa- bb. "Stationary source" means any building, structure, facility, or installation which emits or may emit any air contaminant regulated under North Dakota Century Code chapter 23-25.

2. Significant deterioration of air quality - Area designation and deterioration increment.

- a. The provisions of this chapter do not apply to those counties or other functionally equivalent areas on a contaminant specific basis that exceed any the national ambient air quality standard for sulfur dioxide or particulate matter.
- b. For purposes of this chapter, areas designated as class I, II, or III shall be limited to the following increases in contaminant concentration over the baseline concentration:

Area Designations

Pollutant	Class I (ug/m ³)	Class II (ug/m ³)	Class III (ug/m ³)
Particulate matter:			
Annual geometric mean	5	19	37
24-hour maximum	10	37	75
Sulfur dioxide:			
Annual arithmetic mean	2	15	40
24-hour maximum	5	91	182
3-hour maximum	25	512	700

~~Provided that for~~ For any period other than an annual period, the applicable maximum allowable increase may be exceeded during one such period per year at any receptor site.

Any conflict between an applicable increment and an applicable ambient air quality standard shall be resolved in favor of the more stringent limitation and the source shall be limited to such more stringent limitation.

- c. All of the following areas which were in existence on August 7, 1977, are hereby designated class I areas and may not be redesignated:

- (1) The Theodore Roosevelt National Park - north and south units in Billings and McKenzie Counties, and

the Theodore Roosevelt Elkhorn Ranch Site in Billings County.

- (2) The Lostwood National Wilderness Area in Burke County.

All other areas of the state are hereby designated class II areas.

- d. The following areas may be ~~designated~~ redesignated only as class I or II:

- (1) An area which as of August 7, 1977, exceeds ten thousand acres [4,046.86 hectares] in size and is a national monument, a national primitive area, a national preserve, a national recreational area, a national wild and scenic river, a national wildlife refuge, a national lakeshore or seashore.
- (2) A national park or national wilderness area established after August 7, 1977, which exceeds ten thousand acres [4,046.86 hectares] in size.

- e. Exclusions from increment consumption:

- (1) The following concentrations shall be excluded in determining compliance with a maximum allowable increase in contaminant concentration:
 - (a) Concentrations attributable to the increase in emissions from stationary sources which have converted from the use of petroleum products, natural gas, or both by reason of an order in effect under sections 2(a) and (b) of the Energy Supply and Environmental Coordination Act of 1974 (or any superseding legislation) over the emissions from such sources before the effective date of such order-;
 - (b) Concentrations attributable to the increase in emissions from sources which have converted from using natural gas by reason of natural gas curtailment plan in effect pursuant to the Federal Power Act over the emissions from such sources before the effective date of such plan-;
 - (c) Concentrations of particulate matter attributable to the increase in emissions from construction or other temporary emission related activities of new or modified sources-;

- (d) The increase in concentrations attributable to new sources outside the United States over the concentrations attributable to existing sources which are included in the baseline concentration; and
 - (e) Concentrations attributable to the temporary increase in emissions of sulfur dioxide or particulate matter from stationary sources which increases have been approved in advance by the department.
- (2) No exclusion of such concentrations ~~shall apply~~ applies more than five years after the effective date of the order to which subparagraph a or b of paragraph 1 refers ~~or the plan to which subparagraph b of paragraph 1 refers,~~ whichever is applicable. If both such order and plan are applicable, no such exclusion ~~shall apply~~ applies more than five years after the later of such effective dates.
- (3) For purposes of excluding concentrations pursuant to subparagraph e of paragraph 1:
- (a) The time over which the temporary emissions increase of sulfur dioxide or particulate matter would occur must be specified. Such times ~~shall~~ may not exceed two years in duration unless a longer time is approved by the administrator of the United States environmental protection agency.
 - (b) The time period for excluding certain contributions in accordance with subparagraph a ~~shall~~ is not ~~be~~ renewable.
 - (c) No emissions increase from a stationary source ~~shall~~ may:
 - [1] Impact a class I area or an area where an applicable increment is known to be violated; or
 - [2] Cause or contribute to the violation of any ambient air quality standards.
 - (d) The emission levels from the stationary sources effected at the end of the time period specified in accordance with subparagraph a ~~shall~~ may not exceed those levels occurring from such sources before the temporary increases in emissions were approved.

- f. The class I area increment limitations of the Theodore Roosevelt Elkhorn Ranch Site of the Theodore Roosevelt National Park shall apply only to sources or modifications for which complete applications have not been filed as of the effective date of this section July 1, 1982. The impact of emissions from sources or modifications for which permits under this chapter have been issued or complete applications have already been filed as of the effective date of this paragraph will be counted against the increments after the effective date of this section July 1, 1982.
- g. Any applicant whose emissions will consume more than one-half of the available increment in another state shall may not be granted a permit in accordance with this chapter, unless approved by the department after consultation with the other state.
3. Stack heights. The stack height for any source subject to this chapter must meet the requirements of chapter 33-15-18.
- a- The degree of emission limitation required for control of any air contaminant under this chapter shall not be affected in any manner by-
- (1) So much of the stack height of any source as exceeds good engineering practice, or
- (2) Any other dispersion technique.
- b- For the purpose of this subsection, good engineering practice means, with respect to stack heights, the height necessary to ensure that emissions from the stack do not result in excessive concentrations of any air contaminant in the immediate vicinity of the sources as a result of atmospheric downwash, eddies, and wakes which may be created by the source itself, nearby structures or nearby terrain obstacles (as determined by the department). The stack height shall not exceed good engineering practice stack height unless the owner or operator of the source demonstrates to the satisfaction of the department that a greater height is necessary as provided under the preceding sentence. Good engineering practice (GEP) stack height shall mean the greater of-
- (1) 65 meters-
- (2) $H_G = H + 1.5 L$

Where: H_G = Good engineering practice stack height
H = Height of the structure or nearby structures
L = Lesser dimension (height or width) of the structure or nearby structures. Both the height and width of the structure are determined from the frontal area of the structure, projected onto a plane perpendicular to the direction of the wind.

(3) The height demonstrated by a fluid model or a field study approved by the department, which ensures that the emissions from a stack do not result in excessive concentrations of any air contaminant as a result of atmospheric downwash, wakes, or eddy effects created by the source itself, nearby structures, or terrain obstacles.

e. For the purpose of this subsection:

(1) "Dispersion technique" means any technique which attempts to affect the concentration of a contaminant in the ambient air by:

(a) Using that portion of a stack which exceeds good engineering practice stack height, except to avoid plume impaction on elevated terrain;

(b) Varying the rate of emission of a contaminant according to atmospheric conditions or ambient concentrations of that contaminant, or

(c) Manipulating source design and source process parameters, exhaust gas parameters, or stack parameters, or any other selective handling of exhaust gas streams for the purpose of increasing exhaust gas plume rise, but not including the following:

{1} The reheating of a gas stream, following use of a pollution control system, for the purpose of returning the gas to the temperature at which it was originally discharged from the facility generating the gas stream;

{2} The use of smoke management in agricultural or silvicultural programs; or

{3} Recombining the exhaust gases from several stacks into one stack as long as there is no manipulation of exhaust flow rates or temperatures for the purpose of enhancing plume rise.

{2} "Elevated terrain" means terrain which exceeds the elevation of the good engineering practice stack as calculated under subdivision b.

{3} "Excessive concentrations" for the purpose of determining good engineering practice stack height in a fluid model or field study means a maximum concentration due to downwash, wakes, or eddy effects produced by structures or terrain features which is at least forty percent in excess of the maximum concentration experienced in the absence of such downwash, wakes, or eddy effects.

{4} "Nearby" means that distance up to five times the lesser of the height or width dimension of a structure but not greater than eight-tenths of a kilometer [one-half mile].

{5} "Plume impaction" means concentrations in excess of national and state ambient air quality standards or prevention of significant deterioration increments which result when a plume comes into contact with elevated terrain.

{6} "Stack" means any point in a source designed to emit solids, liquids, or gases into the air including a pipe or duct. Stack height is the distance from the ground-level elevation of the plant to the elevation of the stack outlet.

4. Review of new major stationary sources and major modifications.

- a. Applicability. The requirements of this chapter shall apply to any major new stationary source or modification which:

- (1) Has not been issued a permit to construct or modify prior to March 1, 1978;
- (2) Has not commenced construction prior to March ~~1~~ 19, 1979; or
- (3) Has discontinued construction for a period of eighteen months or more and has not completed construction within a reasonable time.

Review of these sources or modifications ~~shall~~ must be conducted in conjunction with the issuance of permits to construct pursuant to section 33-15-14-02.

b. Permits - general.

- (1) No source subject to this chapter ~~shall~~ may be constructed in any area unless:
 - (a) A permit has been issued for such proposed source in accordance with this chapter setting forth emission limitations or equipment standards for such source which conform to the requirements of this chapter and any conditions necessary to ensure that the proposed source will meet such limits or standards;
 - (b) The requirements of subdivisions c through k, as applicable, have been met; and
 - (c) The proposed permit has been subject to a review in accordance with this chapter, the required analysis has been conducted in accordance with the requirements of this chapter, and the procedures for public participation as defined in subsection 5 have been followed.
- (2) Provided that all necessary requirements of this article have been met, permits will be issued on a first-come, first-served basis as determined by the completion date of the applications.

c. Control technology review.

- (1) A major stationary source or major modification shall meet all applicable emission limitations under the state implementation plan and all applicable emission standards and standards of performance of this article.
- (2) A new major stationary source shall apply best available control technology for each air contaminant subject to regulation under ~~the~~ North Dakota Century

Code chapter 23-25 that it would have the potential to emit in significant amounts.

- (3) A major modification shall apply best available control technology for each air contaminant subject to regulation under ~~the~~ North Dakota Century Code chapter 23-25 for which it would result in a significant net emissions increase at the source. This requirement applies to each proposed emissions unit at which a net emissions increase in the air contaminant would occur as a result of a physical change or change in the method of operation in the unit.
- (4) For phased construction projects, the determination of best available control technology ~~shall~~ must be reviewed and modified as appropriate at the latest reasonable time which occurs no later than eighteen months prior to commencement of construction of each independent phase of the project. At such time, the owner or operator of the applicable stationary source may be required to demonstrate the adequacy of any previous determination of best available control technology for the source.

d. Exemptions from impact analysis.

- (1) The requirements of subdivisions e, g, and i ~~shall~~ do not apply to a major stationary source or major modification with respect to a particular air contaminant, if the allowable emissions from the source, or the net emissions increase of that contaminant from the modification:
 - (a) Would impact no class I area and no area where an applicable increment is known to be violated; and
 - (b) Would be temporary.
- (2) The requirements of subdivisions e, g, and i as they relate to any maximum allowable increase for a class II area ~~shall~~ do not apply to a major modification at a stationary source that was in existence on March 1, 1978, if the net increase in allowable emissions of each air contaminant regulated under North Dakota Century Code chapter 23-25 from the modification after the application of best available control technology would be less than fifty tons [45,359.24 kilograms] per year.
- (3) The department may exempt a stationary source or modification from the requirements of subdivision g

with respect to monitoring for a particular air contaminant if either of the following apply:

- (a) The emissions increase of the air contaminant from the new source or the net emissions increase of the air contaminant from the modification would cause, in any area, air quality impacts less than the following amounts:

Carbon monoxide - 575 $\mu\text{g}/\text{m}^3$, 8-hour average
Nitrogen dioxide - 14 $\mu\text{g}/\text{m}^3$, annual average
Total suspended particulate - 10 $\mu\text{g}/\text{m}^3$,
24-hour average
Sulfur dioxide - 13 $\mu\text{g}/\text{m}^3$, 24-hour average
Ozone - No de minimus level
Lead - 0.1 $\mu\text{g}/\text{m}^3$, 24-hour average
Mercury - 0.25 $\mu\text{g}/\text{m}^3$, 24-hour average
Beryllium - 0.0005 $\mu\text{g}/\text{m}^3$, 24-hour average
Fluorides - 0.25 $\mu\text{g}/\text{m}^3$, 24-hour average
Vinyl chloride - 15 $\mu\text{g}/\text{m}^3$, 24-hour average
Total reduced sulfur - 10 $\mu\text{g}/\text{m}^3$, 1-hour
average
Hydrogen sulfide - 0.04 $\mu\text{g}/\text{m}^3$, 1-hour
average
Reduced sulfur compounds - 10 $\mu\text{g}/\text{m}^3$, 1-hour
average

- (b) The concentrations of the air contaminant in the area that the source or modification would effect are less than the concentrations listed in subparagraph a or the air contaminant is not listed in subparagraph a.

- (4) The requirements for best available control technology in subdivision c and the requirements for air quality analyses in paragraph 1 of subdivision g ~~shall~~ do not apply to a particular stationary source or modification that was subject to this chapter if the owner or operator of the source or modification submitted an application for a permit before May 7, 1981, and the department subsequently determines the application as submitted before that date was complete. Instead, the requirements of ~~this chapter~~ chapter subdivisions c and h as in effect prior to May 7, 1981, apply to any such source or modification.
- (5) The requirements for air quality monitoring in subparagraphs b, c, and d of paragraph 1 of subdivision g ~~shall~~ do not apply to:
- (a) A particular source ~~of~~ or modification that was subject to this chapter as in effect prior to

May 7, 1981, if the owner or operator of the source or modification submits an application for a permit under this chapter on or before June 8, 1981, and the department subsequently determines that the application as submitted before that date was complete with respect to the requirements of this chapter other than those in subparagraphs b, c, and d of paragraph 1 of subdivision g and with respect to the requirements for such analyses in paragraph 2 of subdivision g as in effect prior to May 7, 1981. Instead, the requirements of this chapter prior to May 7, 1981, shall apply to any source or modification.

- (b) A particular source or modification that was not subject to this chapter as in effect prior to May 7, 1981, if the owner or operator of the source or modification submits an application for a permit under this chapter on or before June 8, 1981, and the department subsequently determines that the application as submitted before that date was complete, except with respect to the requirements in subparagraphs b, c, and d of paragraph 1 of subdivision g.
- (6) The requirements of subdivisions c, e, f, g, h, i, and j and subsections 5 and 6 in their entirety ~~shall~~ do not apply to a particular major stationary source or major modification, if:
- (a) The source or modification would be a major stationary source or major modification only if fugitive emissions, to the extent quantifiable, are considered in calculating the potential to emit of the stationary source or modification and the source does not belong to any of the stationary sources of air contaminants listed in subdivision u of subsection 1 and any other stationary source category which, as of August 7, 1980, is being regulated under Section 111 or 112 of the Federal Clean Air Act [Pub. L. 95-95].
 - (b) The source is a portable stationary source which has previously received a permit under this chapter and:
 - [1] The owner or operator proposes to relocate the source and emissions of the source at the new location would be temporary.

[2] The emissions from the source would not exceed its allowable emissions.

[3] The emissions from the source would impact no class I area and no area where an applicable increment is known to be violated.

[4] Reasonable notice is given to the department prior to the relocation identifying the proposed new location and the probable duration of operation at the new location. Such notice shall be given to the department not less than ~~fifteen~~ ten days in advance of the proposed relocation unless a different time duration is previously approved by the department.

(c) With respect to a particular air contaminant, the owner or operator demonstrates that the source or modification is located in an area designated as nonattainment by the administrator of the United States environmental protection agency, as to that air contaminant, under this article.

(d) The source or modification would be a nonprofit health or nonprofit educational institution, or a major modification would occur at such an institution, and the governor requests that it be exempt from such requirements.

e. Source impact analysis. The owner or operator of the proposed source or modification shall demonstrate that allowable emission increases from the source or modification, in conjunction with all other applicable emissions increases or reductions (including secondary emissions) from any other sources, will not cause or contribute to air pollution in violation of:

(1) Any ambient air quality standard in any area; or

(2) Any applicable maximum allowable increase over the baseline concentration in any area.

f. Air quality models.

(1) All estimates of ambient concentrations required under this section ~~shall~~ must be based on the applicable air quality models, data bases, and other requirements specified in the "Guidelines on Air Quality Models" ~~(OARPS 1-2-080 (Revised))~~, United States environmental protection agency, office of air

quality planning and standards, Research Triangle Park, North Carolina 27711) and the "North Dakota Guideline for Air Quality Modeling Analyses" (North Dakota state department of health and consolidated laboratories, division of environmental engineering). These documents are incorporated by reference.

- (2) Where an air quality impact model specified in the documents incorporated by reference in paragraph 1 is inappropriate, the model may be modified or another model substituted provided:
 - (a) Any modified or nonguideline model must be subjected to notice and opportunity for public comment under subsection 5.
 - (b) The applicant must provide to the department adequate information to evaluate the applicability of the modified or nonguideline model. Such information ~~shall~~ must include, but not be limited to, methods like those outlined in the "Workbook for the Comparison of Air Quality Models" (United States environmental protection agency, office of air quality planning and standards, Research Triangle Park, North Carolina 27711).
 - (c) Written approval from the department must be obtained for any modification or substitution prior to an application being designated complete by the department.
 - (d) Written approval from the United States environmental protection agency must be obtained for any modification or substitution prior to the granting of a permit under this chapter.

g. Air quality analysis.

(1) Preapplication analysis.

- (a) Any application for a permit under this section ~~shall~~ must contain an analysis of ambient air quality in the area that the major stationary source or major modification would ~~effect~~ affect for each of the following air contaminants:

[1] For the source, each air contaminant that it would have the potential to emit in a significant amount;

[2] For the modification, each air contaminant for which it would result in a significant net emissions increase.

- (b) With respect to any such air contaminant for which no ambient air quality standard exists, the analysis ~~shall~~ must contain such air quality monitoring data as the department determines is necessary to assess ambient air quality for that air contaminant in any area that the emissions of that air contaminant would affect.
- (c) With respect to any such air contaminant (other than nonmethane hydrocarbons) for which such a standard does exist, the analysis ~~shall~~ must contain continuous air quality monitoring data gathered for purposes of determining whether emissions of that air contaminant would cause or contribute to a violation of the standard or any maximum allowable increase.
- (d) In general, the continuous air quality monitoring data that is required shall have been gathered over a period of at least one year and shall represent at least the year preceding receipt of the application except that if the department determines that a complete and adequate analysis can be accomplished with monitoring data gathered over a period shorter than one year (but not to be less than four months), the data that is required shall have been gathered over at least that shorter period.
- (e) For any application which becomes complete, except as to the requirements of subparagraphs c and d, between June 8, 1981, and February 9, 1982, the data that subparagraph c requires shall have been gathered over at least the period from February 9, 1981, to the date the application becomes otherwise complete, except that:

[1] If the source or modification would have been major for that air contaminant under this chapter as in effect prior to May 7, 1981, any monitoring data shall have been gathered over at least the period required by those ~~regulations~~ rules.

[2] If the department determines that a complete and adequate analysis can be accomplished with monitoring data over a

shorter period (not to be less than four months), the data that subparagraph c requires shall have been gathered over at least that shorter period.

[3] If the monitoring data would relate exclusively to ozone and would not have been required under this chapter as in effect prior to May 7, 1981, the department may waive the otherwise applicable requirements of this subparagraph to the extent that the applicant shows that the monitoring data would be unrepresentative of air quality over a full year.

(f) The owner or operator of a proposed stationary source or modification of volatile organic compounds who satisfies all conditions of 40 CFR, part 51, appendix S, section IV may provide postapproved monitoring data for ozone in lieu of providing preconstruction data as required under paragraph 1.

(2) Postconstruction monitoring. The owner or operator of a major stationary source or major modification shall, after construction of the stationary source or modification, conduct such ambient monitoring as the department determines is necessary to determine the effect emissions from the stationary source or modification may have, or are having, on air quality in any area.

(3) Operations of monitoring stations. The owner or operator of a major stationary source or major modification shall meet the requirements of 40 CFR, part 58, appendix B during the operation of monitoring stations for purposes of satisfying subdivision g.

h. Source information. The owner or operator of a proposed major stationary source or major modification shall submit all information necessary to perform any analysis to make any determination required under this article. Such information ~~shall~~ must include:

(1) A description of the nature, location, design capacity, and typical operating schedule of the proposed source or modification, including specifications and drawings showing the design and plant layout ~~of the source or modification.~~

(2) A detailed schedule for construction of the source or modification.

- (3) A detailed description as to what system of continuous emission reduction is planned by the source or modification, emission estimates, and any other information necessary to determine that best available control technology as specified in the "North Dakota Guidelines for Determining Best Available Technology" (North Dakota state department of health and consolidated laboratories, division of environmental engineering). This document is incorporated by reference.
- (4) The air quality impact of the source or modification, including meteorological and topographical data necessary to estimate such impact.
- (5) Information on the air quality impacts and the nature and extent of general commercial, residential, industrial, and other growth which has occurred since the baseline date in the area the source or modification would affect.

i. Additional impact analyses.

- (1) The owner or operator shall provide an analysis of the impairment to visibility, (in accordance with chapter 33-15-19) soils and vegetation, and wildlife that would occur as a result of the source or modification and general commercial, residential, industrial, and other growth associated with the source or modification. An assessment of an anticipated adverse impact on soils and vegetation in the vicinity of the source or modification shall also be included. Of particular concern are effects that would have significant commercial or recreational value The owner or operator need not provide an analysis on vegetation or wildlife having no significant commercial or recreational value except for endangered and threatened species as identified by the United States fish and wildlife service.
- (2) The owner or operator shall provide an analysis of the air quality impact projected for the area as a result of general commercial, residential, industrial, and other growth associated with the source or modification.

j. Sources impacting federal class I areas - additional requirements.

- (1) Notice to the environmental protection agency. The department shall transmit to the administrator of the United States environmental protection agency through

the United States environmental protection agency region VIII regional administrator a copy of each permit application relating to a major stationary source or major modification received by the department and provide notice to the administrator of every action related to the consideration of such permit.

- (2) Notice to federal land managers. The department shall provide notice of the permit application, a copy of the preliminary determination required under subsection 5, and any materials used in making that determination to the federal land manager and the federal official charged with direct responsibility for management of any lands within a Class I area which may be affected by emissions from the proposed source. The department shall provide such notice promptly after receiving the application.

The department shall provide written notice of any permit application for a proposed major stationary source or major modification, the emissions from which may affect a class I area, to the federal land manager and the federal official charged with direct responsibility for management of any lands within any such area. Such notification must include a copy of all information relevant to the permit application and must be given within thirty days of receipt and at least sixty days prior to any public hearing on the application for a permit to construct. Such notification must include an analysis of the proposed source's anticipated impacts on visibility in the federal class I area. The department shall also provide the federal land manager and such federal officials with a copy of the preliminary determination required under subsection 5 and shall make available to them any materials used in making that determination, promptly after the department makes such determination. Finally, the department shall also notify all affected federal land managers within thirty days of receipt of any advance notification of any such permit application.

- (3) Denial - impact on air quality-related values. A federal land manager may present to the department, after reviewing the department's preliminary determination required under subsection 5, a demonstration that the emission from an applicable source will have an adverse impact on the air quality-related values (including visibility) of federal mandatory class I lands, notwithstanding that the change in air quality resulting from emissions

from such source or modification will not cause or contribute to concentrations which exceed the maximum allowable increases for a class I area. If the department concurs with such demonstration, the permit ~~shall~~ may not be issued.

(4) Class I variances.

(a) The owner or operator of a proposed source may demonstrate to the federal land manager that the emissions from such source or modification will have no adverse impact on the air quality-related values of any such lands (including visibility), notwithstanding that the change in air quality resulting from emissions from such source or modification will cause or contribute to concentrations which exceed the maximum allowable increases for a class I area. If the federal land manager concurs with such demonstration and the manager so certifies to the department, the department may issue the permit pursuant to the requirements of subparagraph b; provided, that the applicable requirements of this chapter are otherwise met.

(b) In the case of a permit issued pursuant to subparagraph a, such source or modification shall comply with such emission limitations under such permit as may be necessary to assure that emissions of sulfur dioxide and particulate matter will not exceed the following maximum allowable increases over the baseline concentration for such contaminants:

	Maximum allowable increase (micrograms per cubic meter)
Particulate matter:	
Annual geometric mean	19
24-hour maximum	37
Sulfur dioxide:	
Annual arithmetic mean	15
24-hour maximum	91
3-hour maximum	325

(5) Sulfur dioxide variance by governor with federal land manager's concurrence. The owner or operator of a proposed source or modification which cannot be approved under paragraph 4 may demonstrate to the governor, that the source or modification cannot be constructed by reason of any maximum allowable increase for sulfur dioxide for periods of twenty-four hours or less applicable to any class I

area and, in the case of federal mandatory class I areas, that a variance under this clause would not adversely affect the air quality-related values of the area (including visibility). The governor, after consideration of the federal land manager's recommendation (if any) and subject to the federal land manager's concurrence, may, after notice and public hearing, grant a variance from such maximum allowable increase. If such variance is granted, the department shall issue a permit to such source or modification pursuant to the requirements of paragraph 7; provided, that the applicable requirements of this chapter are otherwise met.

- (6) Variance by the governor with the president's concurrence. In any case where the governor recommends a variance under this subdivision in which the federal land manager does not concur, the recommendations of the governor and the federal land manager ~~shall~~ must be transmitted to the president. The president may approve the governor's recommendation if the president finds that such variance is in the national interest. If such a variance is approved, the department shall issue a permit pursuant to the requirements of paragraph 7; provided, that the applicable requirements of this chapter are otherwise met.
- (7) Emission limitations for presidential or gubernatorial variance. In the case of a permit issued pursuant to paragraph 5 or 6, the source or modification shall comply with emission limitations under such permit as may be necessary to assure that emissions of sulfur dioxide from such source or modification will not (during any day on which the otherwise applicable maximum allowable increases are exceeded) cause or contribute to concentrations which exceed the following maximum allowable increases over the baseline concentration and to assure that such emissions will not cause or otherwise contribute to concentrations which exceed the otherwise applicable maximum allowable increases for periods of exposure of twenty-four hours or less for more than eighteen days, not necessarily consecutive, during any annual period:

Maximum allowable increase
(micrograms per cubic meter)

Period of exposure	Low Terrain areas	High Terrain areas
24-hour maximum	36	62
3-hour maximum	130	221

- k. Proposed redesignations. Where an owner or operator applies for permission to construct pursuant to this chapter and the proposed source or modification would impact on an area which has previously been proposed for redesignation to a more stringent class by the department, an Indian governing body, or another state (or the state or Indian governing body has announced such consideration), approval ~~shall~~ may not be granted until the proposed redesignation has been acted upon. However, approval ~~shall~~ must be granted if, in the department's judgment, the proposed source would not violate the increments that would be applicable if the redesignation is approved. The department shall withhold approval under this subdivision only so long as another state or Indian governing body is actively and expeditiously proceeding toward redesignation.

Where an owner or operator has applied for permission to construct pursuant to this chapter and whose application has been deemed complete by the department prior to the public announcement of a proposed redesignation of an area to a more stringent class and where such facility would impact on the area proposed for redesignation, the application shall be processed considering the classification of the area which existed at the time the application was deemed complete.

5. Public participation.

- a. Within thirty days after receipt of an application to construct a source or modification subject to this chapter, or any addition to such application, the department shall advise the applicant as to the completeness of the application or of any deficiency in the application or information submitted. In the event of such a deficiency, the date of receipt of the application, for the purpose of this chapter, shall be the date on which all required information to form a complete application is received by the department.

- b. Within one year after receipt of a completed application, the department shall:
- (1) Make a preliminary determination whether the source should be approved, approved with conditions, or disapproved pursuant to the requirements of this chapter.
 - (2) Make available in at least one location in each region in which the proposed source or modification would be constructed, a copy of all materials submitted by the applicant, a copy of the department's preliminary determination and a copy or summary of other materials, if any, considered by the department in making a preliminary determination.
 - (3) Notify the public, by prominent advertisement in newspapers of general circulation in each region in which the proposed source or modification would be constructed, of the application, the preliminary determination, the degree of increment consumption that is expected from the source or modification, and the opportunity for comment at a public hearing as well as written public comment on the information submitted by the owner or operator and the department's preliminary determination on the approvability of the source.
 - (4) Send a copy of the notice required in paragraph 3 to the applicant, the United States environmental protection agency administrator, and to officials and agencies having cognizance over the locations where the source or modification will be situated as follows: local air pollution control agencies, the chief executive of the city and county where the source or modification would be located; any comprehensive regional land use planning agency; and any state, federal land manager, or Indian governing body whose lands may be significantly affected by emissions from the source or modification.
 - (5) ~~Provide opportunity for a~~ Hold a public hearing whenever, on the basis of written requests, a significant degree of public interest exists or at its discretion when issues involved in the permit decision need to be clarified. A public hearing, ~~to~~ would be held during the public comment period, for interested persons (including representatives of the United States environmental protection agency administrator) to appear and submit written or oral comments on the air quality impact of the source or modification, alternatives to the source or

modification, the control technology required and other appropriate considerations.

- (6) Consider all public comments submitted in writing within a time specified in the public notice required in paragraph 3 and all comments received at any public hearing conducted pursuant to paragraph 5 in making its final decision on the approvability of the application. No later than ten days after the close of the public comment period the applicant may submit a written response to any comments submitted by the public. The department shall consider the applicant's response in making its final decision. All comments ~~shall~~ must be made available for public inspection in the same locations where the department made available preconstruction information relating to the source or modification.
- (7) Make a final determination whether the source should be approved, approved with conditions, or disapproved pursuant to the requirements of this chapter.
- (8) Notify the applicant in writing of the department's final determination. The notification ~~shall~~ must be made available for public inspection in the same locations where the department made available preconstruction information and public comments relating to the source or modification.

6. Source obligation.

- a. Any owner or operator who constructs or operates a stationary source or modification not in accordance with the application, submitted pursuant to subsection 4 or with the terms of any permit to construct; or any owner or operator of a stationary source or modification subject to this chapter who commences construction after the effective date of this chapter without applying for and receiving a permit to construct hereunder, shall be subject to enforcement action under North Dakota Century Code section 23-25-10.
- b. A permit to construct shall become invalid if construction is not commenced within eighteen months after receipt of such permit, if construction is discontinued for a period of eighteen months or more, or if construction is not completed within a reasonable time. The department may extend the eighteen-month period upon a satisfactory showing that an extension is justified. This provision does not apply to the time period between construction of the approved phases of a phased construction project; each phase must commence construction within eighteen months of the projected and approved commencement date. In cases of

major construction projects involving long lead times and substantial financial commitments, the department may provide by a condition to the permit, a time period greater than eighteen months when such time extension is supported by sufficient documentation by the applicant.

- c. A permit to construct ~~shall~~ does not relieve any owner or operator of the responsibility to comply fully with the applicable provisions of the state implementation plan and any other requirements under local, state, or federal law.
- d. At such time that a particular source or modification becomes a major stationary source or modification solely by virtue of a relaxation in any enforceable limit which was established after May 7, 1980, on the capacity of the source or modification otherwise to emit an air contaminant, such as a restriction on hours of operation, then the requirements of subdivisions c, e, f, g, h, i, and j, and k of subsection 4, and the requirements of subsection subsections 5, and the requirements of subsection 6 shall apply to the source or modification as though construction had not yet commenced on the source or modification.

7. Innovative control technology.

- a. An owner or operator of a proposed major stationary source or major modification may request the department in writing to approve a system of innovative control technology.
- b. The department shall, with the consent of the ~~governor~~ governors of all affected states, determine that the source or modification may employ a system of innovative control technology, if:
 - (1) The proposed control system would not cause or contribute to an unreasonable risk to public health, welfare, or safety in its operation or function.
 - (2) The owner or operator agrees to achieve a level of continuous emissions reduction equivalent to that which would have been required under paragraph 2 of subdivision c of subsection 4 by a date specified by the department. Such date ~~shall~~ may not be later than four years from the time of startup or seven years from permit issuance.
 - (3) The source or modification would meet the requirements of subdivisions c and e of subsection 4 based on the emissions rate that the stationary source employing the system of innovative control

technology would be required to meet on the date specified by the department.

- (4) The source or modification would not before the date specified by the department:
 - (a) Cause or contribute to a violation of an applicable ambient air quality standard; or
 - (b) Impact any class I area; or
 - (c) Impact any area where an applicable increment is known to be violated.
 - (5) All other applicable requirements including those for public participation have been met.
- c. The department shall withdraw any approval to employ a system of innovative control technology made under this section, if:
- (1) The proposed system fails by the specified date to achieve the required continuous emissions reduction rate;
 - (2) The proposed system fails before the specified date so as to contribute to an unreasonable risk to public health, welfare, or safety; or
 - (3) The department decides at any time that the proposed system is unlikely to achieve the required level of control or to protect the public health, welfare, or safety.
- d. If a source or modification fails to meet the required level of continuous emission reduction within the specified time period or the approval is withdrawn in accordance with subdivision c, the department may allow the source or modification up to an additional three years to meet the requirement for the application of best available control technology through use of a demonstrated system of control.

History: Amended effective July 1, 1982; October 1, 1987.

General Authority: NDCC 23-25-03

Law Implemented: NDCC 23-25-03

33-15-15-02. Reclassification.

1. **Reclassification of areas.** All areas (except as otherwise provided under ~~subdivision~~ subdivisions c and d of subsection 2 of section 33-15-15-01) ~~shall~~ must be designated

either class I, class II, or class III. Any designation other than class II ~~shall be~~ is subject to the redesignation procedures of this section. Redesignation (except as otherwise precluded by subdivision d or e of subsection 2 of section 33-15-15-01) is subject to approval by the administrator of the United States environmental protection agency.

a. Reclassification by petition.

- (1) Filing of petition. After twenty percent of the qualified electors in any county, as determined by the vote cast for the office of governor at the last preceding gubernatorial election, shall petition the department to reclassify any area within such county to class I, class II, or class III, the department shall hold a hearing and take such other action as specified in subsection 3. The department shall reclassify the area proposed in the petition for reclassification only if such reclassification is substantially supported by the hearing record.
- (2) Contents of petition. The petition for petitioning the department to reclassify any area to either class I, class II, or class III as specified in subdivision b of subsection 2 of section 33-15-15-01 ~~shall~~ must contain a legal description of the area which the petition is to affect; an explanation of the meaning and purpose of the petition and reclassification; a statement to the effect that those persons signing the petition desire the described area to be reclassified to either class I, class II, or class III and such statement ~~shall~~ must specify which class; a list of those persons or person circulating such petition, which persons ~~shall~~ must be designated "Committee of Petitioners"; an affidavit to be attached to each petition and sworn to under oath before a notary public by the person circulating each petition attesting to the fact that the person circulated such petition and that each of the signatures to such petition is the genuine signature of the person whose name it purports to be, and that each such person is a qualified elector in the county in which the petition was circulated; all petitions' signatures ~~shall~~ must be numbered and dated by month, day, and year, and the name ~~shall~~ must be written with residence address and post-office address including the county of residence followed by state of North Dakota.

- b. Reclassification upon department's own motion. At such time as the department may determine, it may hold a public hearing and take such other action as specified in

subsection 2 in order to reclassify any area of this state to class I, class II, or class III. The department shall reclassify the area proposed for reclassification only if such reclassification is substantially supported by the hearing record.

2. Procedures for reclassification.

- a. The department may reclassify any area of this state, including any federally owned lands, but excluding lands within the exterior boundaries of any Indian reservations, to either class I or class II pursuant to subdivisions a and b of subsection 1, provided that:
 - (1) At least one public hearing is held in or near the area affected and this public hearing is held in accordance with the procedures established in subsection 3.
 - (2) Other states, Indian governing bodies, and federal land managers whose lands may be affected by the proposed redesignation are notified at least thirty days prior to the public hearing.
 - (3) A discussion of the reasons for the proposed redesignation including a satisfactory description and analysis of the health, environmental, economic, social, and energy effects of the proposed redesignation is prepared and made available for public inspection at least thirty days prior to the hearing and the notice announcing the hearing contains appropriate notification of the availability of such discussion.
 - (4) Prior to the issuance of notice respecting the redesignation of any area that includes any federal lands, the state shall provide written notice to the appropriate federal land manager and afford adequate opportunity (but not in excess of sixty days) to confer with the state respecting the redesignation and to submit written comments and recommendations with respect to such redesignation. In redesignating any area with respect to which any federal land manager has submitted written comments and recommendations, the state shall publish a list of any inconsistency between such redesignation and such comments and recommendations and an explanation of such inconsistency (together with the reasons for making such redesignation against the recommendation of the federal land manager).
 - (5) The proposed redesignation is based on the record of the state's hearing, which must reflect the basis for

the proposed redesignation, including consideration of:

- (a) Growth anticipated in the area.
 - (b) The social, environmental, health, energy, and economic effects of such redesignation upon the area being proposed for redesignation and upon other areas and states.
 - (c) Any impacts of such proposed redesignation upon regional or national interests. Anticipated growth shall include growth resulting both directly and indirectly from proposed development.
- (6) The redesignation is proposed after consultation with the elected leadership of local and other substate general purpose governments in the area covered by the proposed redesignation.
- b. The department may reclassify any area of this state, including any federally owned lands but excluding lands within the exterior boundaries of any Indian reservations, other than an area referred to in subdivision e of subsection 2 of section 33-15-15-01 or an area established as class I under subdivision d of subsection 2 of section 33-15-15-01 to class III if:
- (1) Such redesignation would meet the requirements of subdivision a.
 - (2) Such redesignation has been specifically approved by the governor of the state, after consultation with the appropriate committees of the legislative assembly if it is in session or with the leadership of the legislative assembly if it is not in session and if general purpose units of local government representing a majority of the residents of the area so redesignated enact legislation or pass resolutions concurring the state's redesignation.
 - (3) Such redesignation will not cause, or contribute to, a concentration of any air contaminant which would exceed any maximum allowable increase permitted under the classification of any other area, or any applicable ambient air quality standard.
 - (4) Prior to any public hearing on redesignation of any area, there ~~shall~~ must be available insofar as is practicable for public inspection, any specific plans for any new major stationary source or major modification which may be permitted to be constructed

and operated only if the area in question is redesignated as class III.

3. Reclassification hearings.

- a. Any hearing required by subsection 2 shall be held only after reasonable notice, which shall be considered to include, at least thirty days prior to the date of such hearing:
- (1) Notice given to the public by prominent advertisement in the region affected announcing the date, time, and place of such hearing.
 - (2) Availability of each proposed plan or revision for public inspection in at least one location in each region to which it will apply, and the availability of each compliance schedule for public inspection in at least one location in the region in which the affected source is located.
 - (3) Notification to the administrator of the United States environmental protection agency (through the appropriate regional office).
 - (4) Notification to each local air pollution control agency in each region to which the plan, schedule, or revision will apply.
 - (5) In the case of an interstate region, notification to any other states included, in whole or in part, in the region.
 - (6) Notification to any states, Indian governing bodies, and federal land managers whose lands may be affected by the proposed redesignation.
- b. The department shall prepare and retain for inspection a record of each hearing. The record ~~shall~~ must contain, as a minimum, a list of witnesses together with the text of each presentation.
- c. Any hearing held pursuant to the provisions of this subsection ~~shall~~ must be held only for the purpose of considering such reclassification as has been noticed under the provisions of subsection 2, and consideration of reclassification to other classes not so noticed shall not be allowed.
- d. Any hearing held pursuant to these provisions may be continued for such purposes and for such periods of time as the department may determine.

4. **Time limitation.** Notwithstanding any other regulation herein, the department shall rule upon any proposed reclassification within eighteen months of the official public notification of such proposed redesignation by the department.

History: Amended effective July 1, 1982; October 1, 1987.

General Authority: NDCC 28-32-02

Law Implemented: NDCC 23-25-03

33-15-16-01. General provisions.

1. For the purpose of this chapter, an odor will be considered objectionable when a department certified inspector or at least thirty percent of a randomly selected group of persons, or an odor panel exposed to the odor would deem that odor objectionable if the odor were present in their place of residence.
2. For the purpose of this chapter, an "odor concentration unit" means the maximum number of standard cubic feet units of odor-free air needed to dilute each cubic foot {28-32 liters} diluting a standard unit of odoriferous odorous air so that a department certified inspector or at least fifty percent of an odor panel does not can still detect any an odor in the dilute diluted mixture.
3. For the purpose of this chapter, a department certified inspector is any person who has successfully completed an odor certification course and demonstrated the ability to distinguish various samples and concentrations.

History: Amended effective October 1, 1987.

General Authority: NDCC 23-25-03, 28-32-02

Law Implemented: NDCC 23-25-03

33-15-16-04. Method of measurement. A Barnebey-Cheney Scentometer properly maintained or other instrumental method, as approved by the department may be used in the determination of the intensity of an odor.

Procedures for obtaining ambient air samples containing odorous air contaminants and presenting such samples to the odor panel for tests shall be accomplished according to A.S.T.M. Method D-1391-57 or other method as approved by the department. An odor panel shall consist of a minimum of five persons.

Selection of odor panel members shall follow the guidelines set forth in "Selection and Training of Judges for Sensory Evaluation of the Intensity and Character of Diesel Exhaust Odors", United States P-H-S- Publication No. 999-AP-32.

A Barnebey-Cheney Seentometer suitably calibrated or other instrumental method, as approved by the department may be used in the determination of the intensity of an odor.

History: Amended effective October 1, 1987.

General Authority: NDCC 23-25-03, 28-32-02

Law Implemented: NDCC 23-25-03

33-15-16-05. Method of training. Selection of the department certified inspectors or odor panel members must follow the "North Dakota state department of health and consolidated laboratories odor certification guideline" (North Dakota state department of health and consolidated laboratories, division of environmental engineering).

History: Effective October 1, 1987.

General Authority: NDCC 23-25-03, 28-32-02

Law Implemented: NDCC 23-25-03

STAFF COMMENT: Chapters 33-15-18, 33-15-19, and 33-15-20 contain all new material but are not underscored so as to improve readability.

CHAPTER 33-15-18 STACK HEIGHTS

Section

33-15-18-01	General Provisions
33-15-18-02	Good Engineering Practice Demonstrations
33-15-18-03	Exemptions

33-15-18-01. General provisions.

1. The degree of emission limitation required of any source for control of any air contaminant must not be affected by so much of any source's stack height that exceeds good engineering practice or by any other dispersion technique, except as provided in section 33-15-18-03.
2. Definitions. As used in this chapter, all terms not defined herein shall have the meaning given them in section 33-15-01-04 or in North Dakota Century Code chapter 23-25.
 - a. "A stack in existence" means that the owner or operator had (1) begun, or caused to begin, a continuous program of physical onsite construction of the stack; or (2) entered into binding agreements or contractual obligations, which could not be canceled or modified without substantial loss to the owner or operator, to undertake a program of construction of the stack to be completed in a reasonable time.

- b. (1) "Dispersion technique" means any technique which attempts to affect the concentration of a pollutant in the ambient air by:
- (a) Using that portion of a stack which exceeds good engineering practice stack height;
 - (b) Varying the rate of emission of a pollutant according to atmospheric conditions or ambient concentrations of that pollutant; or
 - (c) Increasing final exhaust gas plume rise by manipulating source process parameters, exhaust gas parameters, stack parameters, or combining exhaust gases from several existing stacks into one stack; or other selective handling of exhaust gas streams so as to increase the exhaust gas plume rise.
- (2) The preceding sentence does not include:
- (a) The reheating of a gas stream, following use of a pollution control system, for the purpose of returning the gas to the temperature at which it was originally discharged from the facility generating the gas stream;
 - (b) The merging of exhaust gas streams where:
 - [1] The source owner or operator demonstrates that the facility was originally designed and constructed with such merged gas streams;
 - [2] After July 8, 1985, such merging is part of a change in operation at the facility that includes the installation of pollution controls and is accompanied by a net reduction in the allowable emissions of a pollutant. This exclusion from the definition of "dispersion techniques" shall apply only to the emission limitation for the pollutant affected by such change in operation; or
 - [3] Before July 8, 1985, such merging was part of a change in operation at the facility that included the installation of emissions control equipment or was carried out for sound economic or engineering reasons. Where there was an increase in the emission limitation or, in the event that no emission limitation was in existence prior

to the merging, an increase in the quantity of pollutants actually emitted prior to the merging, the reviewing agency shall presume that merging was significantly motivated by an intent to gain emissions credit for greater dispersion. Absent a demonstration by the source owner or operator that merging was not significantly motivated by such intent, the reviewing agency shall deny credit for the effects of such merging in calculating the allowable emissions for the source.

- (c) Smoke management in prescribed agricultural or silvicultural burning programs;
 - (d) Episodic restrictions on residential woodburning and open burning; or
 - (e) Techniques under subparagraph c of paragraph 1 which increase final exhaust gas plume rise where the resulting allowable emissions of sulfur dioxide from the facility do not exceed five thousand tons per year.
- c. "Excessive concentration" is defined for the purpose of determining good engineering practice stack height under paragraph 3 of subdivision d and means:
- (1) For sources seeking credit for stack height exceeding that established under paragraph 2 of subdivision d, a maximum ground-level concentration due to emissions from a stack due in whole or in part to downwash, wakes, and eddy effects produced by nearby structures or nearby terrain features which individually is at least forty percent in excess of the maximum concentration experienced in the absence of such downwash, wakes, or eddy effects and which contributes to a total concentration due to emissions from all sources that is greater than an ambient air quality standard. For sources subject to chapter 33-15-15, prevention of significant deterioration of air quality, an excessive concentration alternatively means a maximum ground-level concentration due to emissions from a stack due in whole or in part to downwash, wakes, or eddy effects produced by nearby structures or nearby terrain features which individually is at least forty percent in excess of the maximum concentration experienced in the absence of such downwash, wakes, or eddy effects and greater than a prevention of significant deterioration increment. The allowable emission rate to be used in making demonstrations under this part must be

prescribed by the new source performance standard that is applicable to the source category unless the owner or operator demonstrates that this emission rate is infeasible. Where such demonstrations are approved by the department, an alternative emission rate must be established in consultation with the source owner or operator;

- (2) For sources seeking credit after October 11, 1983, for increases in existing stack heights up to the heights established under paragraph 2 of subdivision d, either (i) a maximum ground-level concentration due in whole or part to downwash, wakes, or eddy effects as provided in paragraph 1, except that the emission rate specified by the department (or, in the absence of such a limit, the actual emission rate) shall be used; or (ii) the actual presence of a local nuisance caused by the existing stack, as determined by the department; and
- (3) For sources seeking credit after January 12, 1979, for a stack height determined under paragraph 2 of subdivision d where the department requires the use of a field study or fluid model to verify good engineering practice stack height, for sources seeking stack height credit after November 9, 1984, based on the aerodynamic influence of cooling towers, and for sources seeking stack height credit after December 31, 1970, based on the aerodynamic influence of structures not adequately represented by the equations in paragraph 2 of subdivision d, a maximum ground-level concentration due in whole or in part to downwash, wakes, or eddy effects that is at least forty percent in excess of the maximum concentration experience in the absence of such downwash, wakes, or eddy effects.

d. "Good engineering practice" (GEP) stack height means the greater of:

- (1) Sixty-five meters [213.25 feet], measured from the ground-level elevation at the base of the stack;
- (2) (a) For stacks in existence on January 12, 1979, and for which the owner or operator had obtained all applicable permits or approvals required by article 33-15, air pollution control,

$$H_g = 2.5H,$$

provided the owner or operator produces evidence that this equation was actually relied on in establishing an emission limitation.

(b) For all other stacks,

$$H_g = H + 1.5L,$$

where:

H_g = good engineering practice stack height, measured from the ground-level elevation at the base of the stack,

H = height of nearby structures measured from the ground-level elevation at the base of the stack,

L = lesser dimension, height or projected width, of nearby structures,

provided that the department may require the use of a field study or fluid model to verify good engineering practice stack height for the source; or

(3) The height demonstrated by a fluid model or a field study approved by the environmental protection agency, state or local control agency, which ensures that the emissions from a stack do not result in excessive concentrations of any air contaminant as a result of atmospheric downwash, wakes, or eddy effects created by the source itself, nearby structures or nearby terrain features.

e. "Nearby" as used in subdivision d is defined for a specific structure or terrain feature and:

(1) For purposes of applying the formulae provided in paragraph 2 of subdivision d means that distance up to five times the lesser of the height or the width dimension of a structure, but not greater than 0.8 kilometers [1/2 mile]; and

(2) For conducting demonstrations under paragraph 3 of subdivision d means not greater than 0.8 kilometers [1/2 mile], except that the portion of a terrain feature may be considered to be nearby which falls within a distance of up to ten times the maximum height (H_t) of the feature not to exceed two miles [3.22 kilometers] if such feature achieves a height (H_t) 0.8 kilometers [1/2 mile] from the stack that is at least forty percent of the good engineering practice stack height determined by the formulae provided in subparagraph b of paragraph 2 of subdivision d or twenty-six meters [85.30 feet], whichever is greater, as measured from the

ground-level elevation at the base of the stack. The height of the structure or terrain feature is measured from the ground-level elevation at the base of the stack.

- f. "Stack" means any point in a source designed to emit solids, liquids, or gases into the air, including a pipe or duct but not including flares.

History: Effective October 1, 1987.

General Authority: NDCC 23-25-03, 28-32-02

Law Implemented: NDCC 23-25-03

33-15-18-02. Good engineering practice demonstrations. Before a new or revised emission limitation is approved that is based on a good engineering practice stack height that exceeds the height allowed by paragraph a or b of subdivision d of subsection 2 of section 33-15-18-01, the department shall notify the public of the availability of the demonstration study and must provide opportunity for public hearing on it. In no event may the department prohibit any increase in stack height or restrict the stack height of any source.

History: Effective October 1, 1987.

General Authority: NDCC 23-25-03, 28-32-02

Law Implemented: NDCC 23-25-03

33-15-18-03. Exemptions. The provisions of this chapter do not apply to stack heights in existence, or dispersion techniques implemented on or before December 31, 1970, except where pollutants are being emitted from such stacks or using such dispersion techniques by sources which were constructed, or reconstructed, or for which major modifications, were carried out after December 31, 1970.

History: Effective October 1, 1987.

General Authority: NDCC 23-25-03, 28-32-02

Law Implemented: NDCC 23-25-03

CHAPTER 33-15-19 VISIBILITY PROTECTION

Section	
33-15-19-01	General Provisions
33-15-19-02	Review of New Major Stationary Sources and Major Modifications
33-15-19-03	Visibility Monitoring

33-15-19-01. General provisions.

1. **Applicability.** The provisions of this chapter apply to the owner or operator of a major stationary source or major modification, as defined in section 33-15-15-01, whose construction or modification is commenced after August 12, 1985. The standards shall be applied in conjunction with the procedures set forth in chapters 33-15-12, 33-15-14, and 33-15-15.
2. **Definitions.** As used in this chapter, all terms not defined herein shall have the meaning given them in section 33-15-01-04, 33-15-12-01, or 33-15-15-01 or in North Dakota Century Code chapter 23-25.
 - a. "Adverse impact on visibility" means visibility impairment which interferes with the management, protection, preservation, or enjoyment of the visitor's visual experience of the federal class I area. This determination must be made on a case-by-case basis taking into account the geographic extent, intensity, duration, frequency, and time of visibility impairment, and how these factors correlate with times of visitor use of the federal class I area, and the frequency and timing of natural conditions that reduce visibility.
 - b. "Natural conditions" include naturally occurring phenomena that reduce visibility as measured in terms of visual range, contrast, or coloration.
 - c. "Visibility impairment" means any humanly perceptible change in visual range, contrast, or coloration from that which would have existed under natural conditions.

History: Effective October 1, 1987.

General Authority: NDCC 23-25-03, 28-32-02

Law Implemented: NDCC 23-25-03

33-15-19-02. Review of new major stationary sources and major modifications.

1. **Visibility impact analysis.** The owner or operator of a major stationary source or major modification, subject to subsection 1 of section 33-15-19-01, shall demonstrate to the department that the actual emissions from the major stationary source or major modification, including fugitive emissions, will not cause or contribute to adverse impact on visibility within any federal class I area. The owner or operator of a proposed major stationary source or major modification shall submit all information necessary to support any analysis or determination made. The owner or operator of a proposed major stationary source or major modification, subject to the

requirements of this subsection, shall provide a visibility impact analysis of the visibility impact likely to occur as a result of general commercial, residential, industrial, and other growth associated with the source or major modification.

2. **Visibility models.** All estimates of visibility impact required under this section must be based on those models contained in "Workbook for Estimating Visibility Impairment" (EPA-450/4-80-031, November 1980). Equivalent models may be used subject to prior approval by the department.
3. **Notification of permit application.** The department shall provide written notice of any permit application for a proposed major stationary source or major modification, the emissions from which may affect a class I area, to the federal land manager and the federal official charged with direct responsibility for management of any lands within any such area. Such notification must include a copy of all information relevant to the permit application and must be given within thirty days of receipt and at least sixty days prior to any public hearing on the application for a permit to construct. Such notification must include an analysis of the proposed source's anticipated impacts on visibility in the federal class I area. The department shall also provide the federal land manager and such federal officials with a copy of the preliminary determination of anticipated impacts on visibility in any federal class I area, and shall make available to them any materials used in making that determination, promptly after the department makes such determination. The department shall also notify all affected federal land manager's within thirty days of receipt of any advance notification of any such permit application.
4. **Federal land manager review.** The department shall consider any analysis performed by the federal land manager, provided within thirty days of the notification required by subsection 3 of this section, that shows that a proposed new major stationary source or major modification may have an adverse impact on visibility in any federal class I area. Where the department finds that such an analysis does not demonstrate to the satisfaction of the department that an adverse impact on visibility will result in the federal class I area, the department will, in the notice of opportunity for public hearing on the permit application, either explain its decision or give notice as to where the explanation can be obtained.
5. **Permits.** No source subject to this chapter may be issued a permit to construct if the department determines that an adverse impact on visibility in any federal class I area will occur because of the proposed source or major modification.

6. **Public participation.** Where a permit application has been filed for a source subject to the provisions of this chapter, the public must be given an opportunity for review of the permit application and the department's determination as described in subsection 5 of section 33-15-15-01.

History: Effective October 1, 1987.

General Authority: NDCC 23-25-03, 28-32-02

Law Implemented: NDCC 23-25-03

33-15-19-03. Visibility monitoring. The department may require monitoring of visibility in any federal class I area near the proposed new stationary source or major modification for such purposes and by such means as the department deems necessary and appropriate. This can include preconstruction, concurrent with construction, or postconstruction monitoring or any combination thereof.

The department shall provide its proposed requirements for visibility monitoring by the owner or operator to the federal land manager prior to issuing a permit to construct. The department shall consider the federal land manager's comments on the proposed monitoring in any final determinations to be placed on a permit to construct or permit to operate, or both.

History: Effective October 1, 1987.

General Authority: NDCC 23-25-03, 28-32-02

Law Implemented: NDCC 23-25-03

CHAPTER 33-15-20 CONTROL OF EMISSIONS FROM OIL AND GAS PRODUCTION FACILITIES

Section

33-15-20-01	General Provisions
33-15-20-02	Registration and Reporting Requirements
33-15-20-03	Prevention of Significant Deterioration Applicability and Source Information Requirements
33-15-20-04	Requirements for Control of Production Facility Emissions

33-15-20-01. General provisions.

1. **Applicability.** The provisions of this chapter apply to any oil or gas production facility which emits sulfur or sulfur compounds to the atmosphere.

2. **Definitions.** As used in this chapter, all terms not defined herein shall have the meaning given them in section 33-15-01-04 or in North Dakota Century Code chapter 23-25.
- a. "Casinghead gas" means any gas or vapor, or both gas and vapor, indigenous to and produced from a pool classified as an oil pool by the North Dakota state industrial commission.
 - b. "Completion" means an oil well must be considered completed when the first oil is produced through wellhead equipment into lease tanks from the ultimate producing interval after casing has been run. A gas well must be considered complete when the well is capable of producing gas through wellhead equipment from the ultimate producing zone after casing has been run. A dry hole must be considered complete when all North Dakota state industrial commission provisions of plugging are complied with.
 - c. "Condensate" means the liquid hydrocarbons recovered at the surface that result from condensation due to reduced pressure or temperature of petroleum hydrocarbons existing in a gaseous phase in the reservoir.
 - d. "Cubic foot of gas" means that volume of gas contained in one cubic foot [28.32 liters] of space and computed at a pressure of fourteen and seven-tenths pounds per square inch [1,034 grams per square centimeter] absolute at a base temperature of sixty degrees Fahrenheit [15.5 degrees Celsius].
 - e. "Gas well" means a well producing gas or natural gas from a common source of gas supply as determined by the North Dakota state industrial commission.
 - f. "Natural gas or gas" means and includes all natural gas and all other fluid hydrocarbons not herein defined as oil.
 - g. "Oil" means and includes crude petroleum oil and other hydrocarbons regardless of specific gravity which are produced at the wellhead in liquid form and the liquid hydrocarbons known as distillate or condensate recovered or extracted from gas, other than gas produced in association with oil and commonly known as casinghead gas.
 - h. "Oil well" means any well capable of producing oil or oil and casinghead gas from a common source of supply as determined by the North Dakota state industrial commission.

- i. "Operator" means any person or persons who, duly authorized, is in charge of the development of a lease or the operation of a producing property.
- j. "Owner" means the person who has the right to drill into and produce from a pool and to appropriate the oil or gas he produces.
- k. "Pool" means an underground reservoir containing a common accumulation of oil or gas or both; each zone of a structure which is completely separated from any other zone in the same structure is a pool.
- l. "Production facility" means all equipment, wells, flow lines, separators, treaters, tanks, flares, gathering lines, and auxiliary nontransportation-related equipment used in the production of oil and gas which are located on one or more contiguous or adjacent properties, and are under the control of the same person (or persons under common control).
- m. "Recomplete" means the subsequent completion of a well in a different pool from the pool in which it was originally completed.
- n. "Reservoir" means pool or common source of supply.

History: Effective October 1, 1987.

General Authority: NDCC 23-25-03, 28-32-02

Law Implemented: NDCC 23-25-03

33-15-20-02. Registration and reporting requirements.

- 1. The owner or operator of any oil or gas well that is completed or recompleted on or after July 1, 1987, shall submit an oil and gas well registration form available from the department, and an analysis of any gas produced from the well. The registration form and gas analysis must be submitted to the department within ninety days of the completion or recompletion date of the well. The registration form must contain sufficient information to allow the department to determine if the oil or gas well and associated production facility is in compliance with all applicable sections of this chapter.
- 2. The owner or operator of any oil or gas well that has been completed or recompleted prior to July 1, 1987, and emits ten tons per year or more of sulfur (all sulfur compounds expressed as S) from any associated production facility shall submit an oil and gas well registration form available from the department, and an analysis of any gas produced from the well. The registration form must contain sufficient

information to allow the department to determine if the oil or gas well and associated production facility is in compliance with all applicable sections of this chapter. The registration form and gas analysis must be submitted to the department by January 1, 1988.

3. The owner or operator of any oil or gas well subject to this section shall inform the department of any change to the information contained on the registration form for a particular well and shall submit a new gas analysis if the composition or the volume of the gas produced from the well has changed from the previous analysis to cause an increase of ten tons per year or more of sulfur (all sulfur compounds expressed as S).

History: Effective October 1, 1987.

General Authority: NDCC 23-25-03, 28-32-02

Law Implemented: NDCC 23-25-03

33-15-20-03. Prevention of significant deterioration applicability and source information requirements.

1. Any oil or gas production facility that emits or has the potential to emit two hundred fifty tons per year or more of any air contaminant regulated under North Dakota Century Code chapter 23-25, as determined by the department, shall comply with the permitting requirements of chapter 33-15-15.
2. To determine prevention of significant deterioration of air quality (PSD) applicability for sulfur dioxide, the following formula must be used:

$$E = 0.00084 R T (\% H_2S)$$

Where: E = sulfur dioxide emission rate (tons/yr).

R = the average daily amount of gas burned, incinerated and/or flared (thousand cubic feet per day-MCFD) based upon a thirty-day period. The thirty-day period must be the last thirty operating days of a one hundred eighty-day period following the completion or recompletion of a well. In cases where the well is shut in for extended periods during the one hundred eighty-day period following completion or recompletion, a case-by-case determination of PSD can be requested of the department.

T = days of operation per year (day/yr).

% H₂S = mole percent hydrogen sulfide content as

determined by the most recent gas analysis.

The formula is derived as follows:

$$E = \left(\frac{\text{Mcf}}{\text{day}}\right) \left(\frac{1000 \text{ cf}}{\text{Mcf}}\right) \left(\frac{\% \text{ H}_2\text{S}}{100}\right) \left(\frac{1 \text{ lb-mole}}{379.5 \text{ cf}}\right) \left(\frac{64.06 \text{ lb SO}_2}{1 \text{ lb-mole}}\right) \left(\frac{\text{days}}{\text{year}}\right) \left(\frac{\text{ton}}{2000 \text{ lb}}\right)$$
$$E = 0.00084 \left(\frac{\text{Mcf}}{\text{day}}\right) \left(\frac{\text{days of operation}}{\text{year}}\right) (\% \text{ H}_2\text{S})$$

Alternative methods of calculation may be used when approved by the department. Emissions from all onsite equipment at the production facility must be included in the total annual emission determination.

3. The owner or operator of any oil or gas production facility subject to subsection 1 of this section shall provide information to demonstrate that emissions from the facility do not significantly contribute to exceeding the ambient air quality standards, as defined in chapter 33-15-02, or class I or class II increments, as defined in chapter 33-15-15; and shall address other requirements as specified in chapter 33-15-15. The demonstration must be performed in accordance with the "North Dakota Guideline for Air Quality Modeling Analyses" available from the department or by actual monitoring.

History: Effective October 1, 1987.

General Authority: NDCC 23-25-03, 28-32-02

Law Implemented: NDCC 23-25-03

33-15-20-04. Requirements for control of production facility emissions.

1. Gases and vapors which are generated as wastes as the result of storage, oil exploration, development, production, refining, or processing operations and which contain hydrogen sulfide, must be incinerated, flared, or treated in an equally effective manner as approved by the department before being released to the ambient air. The emissions from all devices designed for incinerating, flaring, or treating waste gases and vapors shall comply with the requirements of subsection 4.
2. Each flare must be equipped and operated with an automatic ignitor or a continuous burning pilot.
3. The emissions from all treaters, separators, engines, flares, tanks, and other onsite equipment shall comply with the requirements of subsection 4.

4. The owner or operator of any oil or gas production facility shall install equipment necessary to ensure emissions comply with the ambient air quality standards of chapter 33-15-02, including, but not limited to, hydrogen sulfide and sulfur dioxide; the Class I and Class II increments for sulfur dioxide and particulate matter of chapter 33-15-15, if applicable; the odor concentration standard of chapter 33-15-16; and any other applicable chapter of this article.

History: Effective October 1, 1987.

General Authority: NDCC 23-25-03, 28-32-02

Law Implemented: NDCC 23-25-03

NOVEMBER 1987

STAFF COMMENT: Chapter 33-09-03 contains all new material but is not underscored so as to improve readability.

ARTICLE 33-09

CERTIFICATE OF NEED FOR EXPANSION OF HOSPITAL FACILITIES

Chapter

33-09-01	Certification of Need [Superseded]
33-09-02	Certificate of Need Reviews [Superseded]
33-09-03	Certificate of Need

CHAPTER 33-09-01
CERTIFICATION OF NEED

[Superseded by Chapter 33-09-02]

CHAPTER 33-09-02
CERTIFICATE OF NEED REVIEWS

[Superseded by Chapter 33-09-03]

**CHAPTER 33-09-03
CERTIFICATE OF NEED**

Section	
33-09-03-01	Definitions
33-09-03-02	Notification of Intent - Filing Fee
33-09-03-03	Types of Review - Procedures
33-09-03-04	Criteria for Review
33-09-03-05	Certificate of Need Expiration

33-09-03-01. Definitions. The terms used throughout this chapter have the same meaning as in North Dakota Century Code chapter 23-17.2, unless otherwise indicated by the context.

History: Effective November 1, 1987.
General Authority: NDCC 23-01-03, 23-17.2-05
Law Implemented: NDCC 23-17.2-02

33-09-03-02. Notification of intent - Filing fee.

1. Each applicant shall submit a notification of intent on forms prescribed by the health council. Each notification of intent must be accompanied by a filing fee of seventy-five dollars payable to the North Dakota state department of health and consolidated laboratories.
2. The department, with concurrence of the health council, will determine purview.
3. The department will notify the applicant of the purview determination or seek additional information necessary to the determination of purview within fifteen working days of the receipt of a notification of intent. When appropriate, application forms prescribed by the health council will be sent to the applicant by the department.
4. Notifications of intent deemed subject to review will expire one year following the mailing of the notice of the purview determination. Failure by the applicant to complete the application form and to provide sufficient information to satisfy requirements to deem the application complete, as specified in subdivision b of subsection 1 of section 33-09-03-03, prior to the expiration of the notification of intent will cause both the notification of intent and the application to expire.

History: Effective November 1, 1987.
General Authority: NDCC 23-01-03, 23-17.2-05
Law Implemented: NDCC 23-17.2-09

33-09-03-03. Types of review - Procedures.

1. **Full review.** A full review must be conducted of each proposal found subject under North Dakota Century Code section 23-17.2-03, unless the proposal is found eligible for a special review under provisions of subsection 2 of this section.
 - a. Completed applications must be submitted to the department. Each application must be accompanied by a fee payable to the North Dakota state department of health and consolidated laboratories as prescribed by North Dakota Century Code section 23-17.2-09.
 - b. Applications received with appropriate fee will be reviewed for completeness by the department within fifteen working days of receipt. Submissions of requested additional information will be reviewed for completeness within fifteen working days of receipt. The department must deem the application complete or request necessary additional information from the applicant by the fifteenth working day. No information may be required of an applicant which is not reasonably related to criteria specified in section 33-09-03-04 and necessary to perform review of the application.
 - c. Written notice that an application has been deemed complete will be provided to the applicant and must be published in one or more newspapers of general circulation within the affected service area. The notice must include:
 - (1) The name and address of the applicant, and a description of the proposal and its estimated costs.
 - (2) The proposed schedule for review.
 - (3) The time and manner by which affected persons may request an informal local hearing to provide additional information concerning the application.
 - (4) The date of notice shall be the date of earliest publication or fourteen days following the date on which the application is deemed complete, whichever comes first.
 - d. The department will have ninety days from the date of notice of completeness to conduct a review of the application based on criteria specified in section 33-09-03-04. The ninety-day-review period may be extended with concurrence of the applicant and the department. Recommendations of the department will be communicated to the applicant and to the health council.

- e. The health council may, at its option for the purpose of simultaneous consideration of like applications, delay consideration of certain applications. In such circumstances, the health council shall specify to the applicant a date certain by which the application will be considered. In no case will the health council cause consideration of any application to be delayed more than one hundred eighty days without the consent of the applicant.
 - f. The health council will, except in cases described in subdivision e of subsection 1 of section 33-09-03-03, make its determination at the next scheduled meeting following completion of the department's review. The department will cause the determination and the basis for the determination to be communicated to the applicant in writing. This communication will be made within five working days of the date of determination. Written notice of the determination must be published in one or more newspapers of general circulation within the affected service area. The notice must include:
 - (1) The name and address of the applicant and a description of the proposal and its proposed costs.
 - (2) The determination of the health council.
 - (3) The time and manner by which affected persons may request a hearing conducted under North Dakota Century Code chapters 28-32 and 23-17.2 for reconsideration of the health council's determination.
 - (4) The manner in which additional information concerning the application or the reconsideration process may be obtained.
 - (5) Affected persons will have a minimum of fifteen days to respond following earliest publication of the notice.
2. **Special review.** The department may issue, but not deny, certificates of need for proposals which qualify. Special reviews will be conducted based on information obtained through the notification of intent form and any supplemental information required by the department to verify qualification under the following circumstances:
- a. Emergency or circumstances beyond the control of the applicant.

- b. Elimination or prevention of imminent safety hazards as defined by federal, state, or local fire, building, or life safety codes, rules, or regulations.
- c. Compliance with state licensure, accreditation, or federal certification standards required to continue reimbursement under title XVIII or title XIX of the Social Security Act.
- d. Cost overruns experienced in implementation of a proposal which exceed by ten percent or more the capital expenditure approved and specified in any certificate of need and which are not precipitated by a change in the scope of the project.
- e. Projects mandated by state law, with need established through the legislative process as indicated by the appropriation of funds for implementation.

History: Effective November 1, 1987.

General Authority: NDCC 23-01-03, 23-17.2-05

Law Implemented: NDCC 23-17.2-05

33-09-03-04. Criteria for review. The health council will base its consideration of each application subject to full review on the department's review of the proposal and on the record of administrative proceedings held on the application. The review criteria for consideration of applications include the following:

1. The relationship of the proposal to the state health plan.
2. The need that the population served or to be served has for the services proposed to be offered or expanded.
3. The corporate or institutional need for implementation of the proposal.
4. The availability of less costly or more effective alternative resources for providing the services to be offered, expanded, reduced, or relocated.
5. Consideration of alternative uses for resources proposed to be used in implementing the proposal.
6. The contribution of the proposed service or facility in meeting the health-related needs of persons or groups which have traditionally experienced difficulty in obtaining equal access to health services.
7. The effect of implementing the proposal on competition in the affected service area including any probable favorable influence on the price or quality of services offered.

8. The demonstration of availability of resources including plant, personnel, appropriate ancillary or support services, and funds for acquisition and operation sufficient to reasonably ensure compliance with applicable state licensing and federal certification requirements upon implementation of the proposal.
9. The probable impact of implementation on the cost of services to be offered, and on the overall cost of health care to North Dakotans.
10. Special innovations in the financing of health services that may favorably influence the price of services proposed.
11. Special innovations in the delivery of health services that may improve patient access or patient outcome.
12. Special circumstances or needs of health professional training programs or schools and health research programs located in the affected service area.

History: Effective November 1, 1987.

General Authority: NDCC 23-01-03, 23-17.2-05

Law Implemented: NDCC 23-17.2-05

33-09-03-05. Certificate of need expiration. Each certificate of need is valid for a period of one year from the date of determination. One extension of one hundred eighty days may be granted by the department upon request of the applicant. Failure by the applicant to obligate funds for implementation of the proposal within the designated time will render the certificate of need null and void. However, time spent in a reconsideration action or a court appeal will not count toward the expiration of a certificate of need.

History: Effective November 1, 1987.

General Authority: NDCC 23-01-03, 23-17.2-05

Law Implemented: NDCC 23-17.2-05