Chapter NR 665

INCINERATOR STANDARDS

NR 665.01 Purpose. The purpose of this chapter is to specify the requirements and standards that apply to incinerators that burn hazardous waste.

History: Cr. Register, February, 1991, No. 422, eff. 3–1–91.

NR 665.02 Applicability. Except as otherwise provided, this chapter applies to owners and operators of treatment facilities that treat hazardous waste in incinerators. This chapter also applies to owners and operators who burn hazardous waste in boilers or industrial furnaces in order to destroy the hazardous waste or to owners and operators who burn hazardous waste in boilers or industrial furnaces for any recycling purpose and do not receive an exemption under s. NR 665.05 (2). This chapter does not apply to solid waste incinerators that treat only:

(1) Non–hazardous solid waste,

(2) Metallic mining wastes resulting from a mining operation as defined in s. 293.01 (9), Stats., or

(3) A combination of wastes described in subs. (1) and (2).

History: Cr. Register, February, 1991, No. 422, eff. 3–1–91; correction made under s. 13.93 (2m) (b) 1., Stats., Register, August, 1992, No. 440; am. (2), r. (3), renum. (4) to be (3) and am., Register, May, 1995, No. 473, eff. 5–1–95**; correction in (2) made under s. 13.93 (2m) (b) 7., Register, May, 1998, No. 509.**

NR 665.03 Definitions. The definitions in s. NR 600.03 apply to this chapter.

History: Cr. Register, February, 1991, No. 422, eff. 3–1–91.

NR 665.05 General. (1) GENERAL. Except as otherwise provided in sub. (2), no person may operate or maintain an incinerator for the purpose of burning hazardous wastes unless the person has obtained an interim license, operating license, variance or waiver from the department in accordance with the requirements of s. NR 600.09 and ch. NR 680. Any person who will establish or construct an incinerator for the purpose of burning hazardous waste shall contact the department to arrange for an initial site inspection.

(2) BURNING HAZARDOUS WASTE FOR ENERGY RECOVERY. As provided in ss. NR 625.04 and 625.07, a person burning hazardous waste for energy recovery in boilers or industrial furnaces, except as provided in s. NR 625.05 (2), may be exempted from the requirements of this chapter if a written exemption is obtained from the department.

(3) WASTES THAT MAY BE BURNED. The owner or operator of a hazardous waste incinerator may burn only wastes specified in the incinerator's license and only under the operating conditions specified for those wastes in this chapter except in approved trial burns. If the owner or operator of a hazardous waste incinerator has a variance or waiver the owner or operator may burn only the wastes specified in the variance or waiver and only under the operating conditions specified for those wastes in the variance or waiver. Other hazardous wastes may be burned only after obtaining a new license or a license modification.

History: Cr. Register, February, 1991, No. 422, eff. 3–1–91.

NR 665.06 Feasibility and plan of operation report. (1) Unless specifically exempted in s. NR 605.05 (2), no person may establish or construct a hazardous waste incinerator or be issued an initial operating license under ch. NR 680 without first obtaining approval of a feasibility and plan of operation report. The purpose of a feasibility and plan of operation report is to determine whether the site has potential for use as a hazardous waste incinerator and to identify and address any operating conditions which are necessary for the proper operation of the facility. Favorable feasibility determination and plan approval under this section does not guarantee final licensure. During the review of the feasibility and plan of operation report, the department shall establish operating conditions for a new hazardous waste incinerator to be effective during the shakedown period, the trial burn period, the post–trial burn period and preliminary operating conditions to be effective during the final operating period. The feasibility and plan of operation report for a hazardous waste incinerator shall be submitted in accordance with ss. 289.23 and 289.30, Stats., and ss. NR 680.05 (1) and 680.06 (3) and shall contain, at a minimum, the following information:

(a) A map or aerial photograph of the area showing land use and zoning within 400 meters (1/4 mile) of the site. The map or aerial photograph shall be of sufficient scale to show all homes, industrial buildings, roads and other applicable details and the details shall be identified and indicated on the map or aerial photograph.

(b) A plot plan of the hazardous waste incinerator site including means of limiting access such as fencing, gates, natural barriers; method of acceptably screening the facility from the surrounding area; general layout of equipment and flow pattern; road access; location of existing and proposed utilities serving the incinerator.

(c) A report which shall include the following information:

1. Population, area and entities to be served by the incinerator.

2. Persons responsible for incinerator construction and operation.

3. Estimated quantities and characteristics of wastes resulting from facility operations and methods for their treatment or disposal.

4. Names and locations of all hazardous waste disposal sites and facilities at which hazardous and solid wastes resulting from incinerator operation shall be disposed.

5. Incinerator specifications including the manufacturer, model, capacity, incinerator dimensions, expected combustion temperature, the flue gas flow rate, monitoring methods used to comply with s. NR 665.09 (13) and any air pollution control devices that shall be used.

6. Expected operating schedule.

(d) For the purpose of determining the feasibility of compliance with the performance standards of this section and determining adequate operating conditions, applicants shall propose a trial burn plan, which includes the following information:

1. An analysis of each waste or mixture of waste to be burned during the trial burn and during normal operation which includes:

a. Heat value of the waste in the form and composition in which it shall be burned.

b. Viscosity, if applicable, or description of physical form of the waste.

c. Composition and quantity of hazardous waste or mixtures of hazardous waste to be incinerated. The composition of each waste or mixture of wastes shall include an analysis for heating value, chlorine, sulfur content, ash content and any hazardous constituent listed in ch. NR 605 − Appendix IV.

d. An identification of any hazardous organic constituents listed in ch. NR 605, Appendix IV, which are present in the waste to be burned, except that the applicant need not analyze for constituents listed in ch. NR 605, Appendix IV, which would reasonably not be expected to be found in the waste. The constituents excluded from analysis shall be identified, and the basis for the exclusion stated. The waste analysis shall rely on analytical techniques specified in EPA Publication SW−846, "Test Methods for Evaluating Solid Waste, Physical/ Chemical Methods, as incorporated by reference in s. NR 600.10 (2) (b) 1. and (c), or other equivalent.

2. An approximate quantification of the hazardous constituents identified in the waste, within the precision produced by the analytical methods specified in EPA Publication SW−846, "Test Methods for Evaluating Solid Waste, Physical/Chemical Methods", as incorporated by reference in s. NR 600.10 (2) (b) 1. and (c), or their equivalent.

3. A detailed engineering description of the incinerator, including:

a. Manufacturer's name and model number of incinerator, if available.

b. Type of incinerator.

c. Linear dimensions of the incinerator unit including the cross sectional area of the combustion chamber.

d. Description of the auxiliary fuel system type/feed.

e. Capacity and type of prime mover.

f. Description of automatic waste feed cut−off systems.

g. Stack gas monitoring and pollution control equipment.

h. Nozzle and burner design.

i. Construction materials.

j. Location and description of temperature, pressure and flow indicating and control devices.

4. A detailed description of sampling and monitoring procedures, including sampling and monitoring locations in the system, sampling and monitoring equipment to be used, sampling and monitoring frequency and planned analytical procedures for sample analysis.

5. A detailed test schedule for each waste for which the trial burn is planned including dates, duration, quantity of waste to be burned and other factors relevant to the department's decision under sub. (3).

6. A detailed trial burn protocol, including for each waste identified, the ranges of combustion temperature, waste feed rate expected, carbon monoxide level in the exhaust gas, combustion gas velocity, use of auxiliary fuel and any other relevant parameters that shall be varied to effect the destruction and removal efficiency of the incinerator.

7. A description of, and planned operating conditions for, any pollution and emission control equipment which shall be used.

8. Procedures for rapidly stopping waste feed, shutting down the incinerator and controlling emissions in the event of an equipment malfunction.

9. The department, in reviewing the trial burn plan, shall evaluate the sufficiency of the information provided and may require the applicant to supplement this information, if necessary, to achieve the purposes of this section.

10. The department shall send a notice to all persons on the facility mailing list in s. NR 680.06 (10) (a) 3. and to the appropriate units of state and local government in s. NR 680.06 (12) (a) 4. announcing the scheduled commencement and completion dates for the trial burn. The applicant may not commence the trial burn until after the department has issued the notice. This notice shall be mailed within a reasonable time period before the scheduled trial burn. An additional notice is not required if the trial burn is delayed due to circumstances beyond the control of the facility or the department. This notice shall contain all of the following:

a. The name and telephone number of the applicant's contact person.

b. The name and telephone number of the department's contact office.

c. The location where the approved trial burn plan and any supporting documents can be reviewed and copied.

d. A schedule of the activities that are required prior to permit issuance, including the anticipated time schedule for department approval of the plan.

e. An expected time period for commencement and completion of the trial burn.

(e) In lieu of the trial burn requirements in par. (d), the applicant may submit the following information:

1. An analysis of each waste or mixture of wastes to be burned including:

a. Heat value of the waste in the form and composition in which it shall be burned.

b. Viscosity, if applicable, or description of physical form of the waste.

c. An identification of any hazardous organic constituents listed in ch. NR 605, Appendix IV, which are present in the waste to be burned, except that the applicant need not analyze for constituents listed in ch. NR 605, Appendix IV, which would reasonably not be expected to be found in the waste. The constituents excluded from analysis shall be identified and the basis for their exclusion stated. The waste analysis shall rely on analytical techniques specified in EPA Publication SW−846, "Test Methods for Evaluating Solid Waste, Physical/ Chemical Methods", as incorporated by reference in s. NR 600.10 (2) (b) 1. and (c), or their equivalent.

d. An approximate quantification of the hazardous constituents identified in the waste, within the precision produced by the analytical methods specified in EPA Publication SW−846, "Test Methods for Evaluating Solid Waste, Physical/Chemical Methods" as incorporated by reference in s. NR 600.10 (2) (b) 1. and (c).

e. A quantification of those hazardous constituents in the waste which may be designated as principal organic hazardous constituents (POHCs) based on data submitted from other trial or operational burns which demonstrate compliance with the performance standards of this section.

2. A detailed engineering description of the incinerator, including:

a. Manufacturer's name and model number of incinerator.

b. Type of incinerator.

c. Linear dimensions of incinerator unit including cross sectional area of the combustion chamber.

d. Description of auxiliary fuel system type/feed.

e. Capacity of prime mover.

f. Description of automatic waste feed cutoff systems.

g. Stack gas monitoring and pollution control equipment.

h. Nozzle and burner design.

i. Construction materials.

j. Location and description of temperature, pressure and flow indicating devices and control devices.

3. A description and analysis of the waste to be burned compared with the waste for which data from operational or trial burns are provided to support the contention that a trial burn is not needed. The data shall include those items listed in subd. 1. This analysis shall specify the POHCs which the applicant has identified in the waste for which an operating license is sought, and any differences from the POHCs in the waste for which burn data are provided.

4. The design and operating conditions of the incinerator unit to be used, compared with that for which comparative burn data are available.

5. A description of the results submitted from any previously conducted trial burns including:

a. Sampling and analysis techniques used to calculate performance standards in s. NR 665.09 (13).

b. Methods and results of monitoring temperatures, waste feed rates, carbon monoxide and an appropriate indicator of combustion gas velocity, including a statement concerning the precision and accuracy of this measurement.

6. The expected incinerator operational information to demonstrate compliance with s. NR 665.09, including:

a. Expected carbon monoxide (CO) level in the stack exhaust gas.

b. Waste feed rate.

c. Combustion zone temperature.

d. Indication of combustion gas velocity.

e. Expected stack gas volume, flow rate and temperature.

f. Computed residence time for waste in the combustion zone.

g. Expected hydrochloric acid removal efficiency.

h. Expected fugitive emissions and their control procedures.

i. Proposed waste feed cut−off limits based on the identified significant operating parameters.

7. Supplemental information as the department finds necessary to achieve the purposes of this paragraph.

8. Waste analysis data, including that submitted in subd. 1., sufficient to allow the department to specify as licensed POHCs those constituents for which destruction and removal efficiencies shall be required.

(f) The department may approve a feasibility and plan of operation report without a trial burn plan if the information submitted under par. (e) is provided and if it is found that:

1. The wastes are sufficiently similar; and

2. The incinerator units are sufficiently similar, and the data from other trial burns are adequate to specify operating conditions that ensure that the performance standards of s. NR 665.09 (13) will be met by the incinerator.

(g) Appurtenances and procedures intended to store hazardous waste beyond the end of the working day and to control dust, odors, and fire outside the burning chamber.

(h) Waste changing methods during incinerator operation.

(i) Provisions for interim waste storage or disposal when the incinerator is unavailable, including:

1. Type of storage or disposal.

2. Location of storage or disposal facility.

3. Capacity of the storage facility.

4. Daily clean−up procedures.

5. Incinerator inspection, maintenance and monitoring plans and procedures.

6. Detailed drawings and specifications of all structures, equipment and the facility.

7. A report which includes furnace design criteria and expected performance data, including emission data.

8. A waste analysis plan that shall ensure compliance as specified in s. NR 630.20 (1).

9. A contingency plan as specified in s. NR 630.22 (1).

10. Proposed site closure plans addressing the items specified in s. NR 640.06.

(j) A statement which suggests operating conditions necessary to operate in compliance with the performance standards of s. NR 665.09 (13) during both the shakedown period and the post−trial burn period in accordance with s. NR 665.07 (1) and (3).

(2) Based on the waste analysis data in the trial burn plan, the department shall specify as trial principal organic hazardous constituents (POHCs), those constituents for which destruction and removal efficiencies shall be calculated during the trial burn. These trial POHCs shall be specified by the department based on an estimate of the difficulty of incineration of the constituents identified in the waste analysis, their concentration or mass in the waste feed, and for wastes listed in s. NR 605.09 the hazardous waste organic constituent or constituents identified in ch. NR 605, Appendix III as the basis for listing.

(3) The department shall approve a trial burn plan if it finds that:

(a) The trial burn is likely to determine whether the incinerator performance standards required in s. NR 665.09 can be met;

(b) The trial burn itself does not present an imminent hazard to human health or the environment;

(c) The trial burn will help the department to determine operating requirements to be specified under s. NR 665.09; and

(d) The information sought in pars. (a) and (c) cannot reasonably be developed through other means.

(4) For the purposes of determining compliance with the performance standards of s. NR 665.09 and determining adequate operating conditions under s. NR 665.09, any person who submits a feasibility and plan of operation report for an existing hazardous waste incinerator operating under an interim license or a variance shall prepare and submit a trial burn plan and perform a trial burn in accordance with subs. (1) (d), (2) and (3) and s. NR 665.07 (2).The department shall announce its intention to approve the trial burn plan in accordance with the timing and distribution requirements of sub. (1) (d) 10, including the contents of the notice specified in that section. Persons who submit trial burn plans and receive approval before submission of a feasibility and plan of operation report shall complete the trial burns and submit the results, specified in s. NR 665.07 (2), with the feasibility and plan of operation report. If completion of this process conflicts with the date set for submission of the feasibility and plan of operation report, the department shall be notified and may establish a later date for submission of the feasibility and plan of operation report or the trial burn results. Trial burn results shall be submitted prior to the issuance of a license. If the trial burn plan is to be included with the feasibility and plan of operation report, the trial burn shall be conducted and the results submitted within a time period to be specified by the department.

(5) Within 60 days after a feasibility and plan of operation report is submitted, the department shall either determine that the report is complete or notify the applicant in writing that the report is not complete, specifying the information which the applicant shall submit before the report is deemed complete. The department shall determine whether or not the feasibility and plan of operation report is complete by determining whether or not the minimum requirements of this section have been met. Additional feasibility and plan of operation information may be required of the applicant after a determination that the feasibility and plan of operation report is complete only if the department establishes that a detailed review of the feasibility and plan of operation report indicates that feasibility cannot be determined and the report is insufficient in the absence of additional information.

(6) If no hearing has been conducted under ss. 289.26 and 289.27, Stats., the department shall issue the final determination for the feasibility and plan of operation report within 60 days after the 45 day notice period required under ss. 289.26 (1) and 289.27 (1), Stats., has expired. If an informational hearing is conducted

under s. 289.26, Stats., the department shall issue a final determination for the feasibility and plan of operation report within 60 days after the hearing is adjourned. If a contested case hearing is conducted under s. 289.27, Stats., a final determination for the feasibility and plan of operation report shall be issued within 90 days after the hearing is adjourned.

History: Cr. Register, February, 1991, No. 422, eff. 3–1–91; corrections in (1) (d) 1. c. and (e) 1. c. made under s. 13.93 (2m) (b) 7., Stats., Register, May, 1992, No. 437; am. (1) (d) 1. d., Register, August, 1992, No. 440, eff. 9–1–92; am. (1) (d) 1. d., 2., (1) (e) 1. c. and d., Register, May, 1995, No. 473, eff. 5–1–95**; am. (1) (d) 1. d., 2. and (4), Register, May, 1998, No. 509, eff. 6–1–98; corrections made under s. 13.93 (2m) (b) 7., Register, May, 1998, No. 509.**

NR 665.07 Incinerator licenses and final plan approval. Once the feasibility determination and initial plan of operation approval have been made and all other necessary requirements in s. NR 680.31 (1) have been met, an application for a hazardous waste incinerator license may be submitted. The incinerator license shall cover the shakedown period following construction of a proposed facility, the trial burn period, the post–trial burn period and the final operational period. The department shall review the feasibility and plan of operation report and initial plan approval to ensure that the final incinerator plan approval and license includes the following information:

(1) SHAKEDOWN PERIOD. (a) For the purposes of determining operational readiness following completion of physical construction, the department shall establish operating plan approval conditions, including but not limited to allowable waste feeds and operating conditions, in the plan approval for a new hazardous waste incinerator. These plan approval conditions shall be effective for the minimum time required to bring the incinerator to a point of operational readiness sufficient to conduct a trial burn, not to exceed 720 hours operating time for treatment of hazardous waste. The department may extend the duration of this operational period once, for up to 720 additional hours, at the request of the applicant when good cause is shown. The plan approval may be modified to reflect the extension.

(b) Applicants shall include a statement, with the feasibility and plan of operation report, which suggests the conditions necessary to operate in compliance with the performance standards of s. NR 665.09 during this period. This statement shall include, at a minimum, restrictions on waste constituents, waste feed rates and the operating parameters identified in s. NR 665.09.

(c) The department shall review the statement described in par. (b) and any other relevant information submitted with the feasibility and plan of operation report and specify requirements for this period sufficient to meet the performance standards of s. NR 665.09 based on its engineering judgment.

(2) TRIAL BURN PERIOD. The trial burn shall be conducted as specified in the approved trial burn plan in the feasibility and plan of operation report. Any deviations from the approved trial burn plan shall be carefully noted and the reason for the deviation fully explained. In order for the department to evaluate the trial burn, the following information shall be submitted to the department:

(a) During each approved trial burn, or as soon after the burn as is practicable, the applicant shall make the following determinations and shall submit them to the department:

1. A quantitative analysis of the trial POHCs in the waste feed to the incinerator.

2. A quantitative analysis of the exhaust gas for the concentration and mass emissions of the trial POHCs, oxygen (O) and hydrogen chloride (HCl).

3. A quantitative analysis of the scrubber water, if any, ash residues and other residues for the purpose of estimating whether the trial POHCs were destroyed, removed, transformed or unchanged.

4. A computation of destruction and removal efficiency (DRE), in accordance with the DRE formula specified in s. NR 665.09 (13).

5. a. A computation of hydrogen chloride (HCl) removal showing the HCl emission rate does not exceed 1.8 kilograms of HCl per hour (4 pounds per hour); or

b. If the HCl emission rate exceeds 1.8 kilograms (4 pounds) of HCl per hour, a computation showing the HCl removal efficiency is 99% or greater in accordance with s. NR 665.09 (13) (c).

6. A computation of particulate emissions, in accordance with the formula specified in s. NR 665.09 (13).

7. An identification of sources of fugitive emissions and their means of control.

8. A measurement of average, maximum and minimum temperatures and combustion gas velocity.

9. A continuous measurement of carbon monoxide (CO) in the exhaust gas.

10. All sampling and analysis shall be done in accordance with 40 CFR Part 60, Appendix A, July, 1, 1990 or "Sampling and Analysis Methods for Hazardous Waste Combustion, EPA–600/8–84–002".

Note: The publication containing the CFR reference may be obtained from:

The Superintendent of Documents
U.S. Government Printing Office
Washington, D.C. 20402

Publication EPA–600/8–84–002 may be obtained from:

The National Technical Information Service
U.S. Department of Commerce
Springfield, VA 22161

These publications are available for inspection at the offices of the department, the secretary of state and the revisor of statutes.

(b) The applicant shall submit other information as the department may specify as necessary to ensure that the trial burn shall comply with the performance standards in this section and to establish the operating conditions necessary to meet these performance standards.

(c) The applicant shall submit to the department a certification that the trial burn has been carried out in accordance with the approved trial burn plan, and shall submit the results of all the determinations required. This submission shall be made within 90 days of completion of the trial burn or later if approved by the department.

(d) All data collected during any trial burn shall be submitted to the department following the completion of the trial burn.

(e) All submissions required by this section shall be certified on behalf of the applicant by the signature of a person authorized to sign a license application in accordance with s. NR 680.05 (2).

(f) Based on the results of the trial burn, the department shall set the operating requirements in the final plan approval.

(3) POST–TRIAL BURN PERIOD. (a) For the purposes of allowing operation of a new hazardous waste incinerator following completion of the trial burn and prior to final modification of the plan approval conditions to reflect the trial burn results, the department may establish plan approval conditions, including but not limited to allowable waste feeds and operating conditions sufficient to meet the requirements of s. NR 665.09 in the plan approval for a hazardous waste incinerator. These plan approval conditions shall be effective for the minimum time required to complete sample analysis, data computation and submission of the trial burn results by the applicant, and modification of the incinerator plan approval by the department.

(b) Applicants shall submit a statement, in a plan approval modification request, which identifies the conditions necessary to operate in compliance with the performance standards of s. NR 665.09 during this period. This statement shall include, at a minimum, restrictions on waste constituents, waste feed rates and the operating parameters identified in this section.

(c) The department shall review the statement described in par. (b) and any other relevant information submitted with the modifi-

cation request and specify those operating conditions for this period most likely to meet the performance standards of s. NR 665.09 (13) based on its engineering judgment.

(4) FINAL OPERATION PERIOD. The department shall take action on the plan approval modification request if the modification request is supported by the results of the trial burn and other relevant information. The modification request shall be incorporated into the plan approval. Following modification, the plan approval shall specify final operating conditions for the final hazardous waste incinerator license.

History: Cr. Register, February, 1991, No. 422, eff. 3−1−91; am. (2) (a) 10., Register, August, 1992, No. 440, eff. 9−1−92.

NR 665.08 Principal organic hazardous constituents (POHCs). (1) Principal organic hazardous constituents (POHCs) in the waste feed shall be treated to the extent required by s. NR 665.09 (13).

(2) (a) One or more POHCs will be specified in the facility's license, from among those constituents listed in ch. NR 605, Appendix IV, for each waste feed to be burned. This specification will be based on the degree of difficulty of incineration of the organic constituents in the waste and on their concentration or mass in the waste feed, considering the results of waste analyses and trial burns or alternative data submitted with the feasibility report and plan of operation report requirements of ss. NR 665.06 and 665.07 of the facility's license application.

Note: Organic constituents which represent the greatest degree of difficulty of incineration will be those most likely to be designated as POHCs. Constituents are more likely to be designated as POHCs if they are present in large quantities or concentrations in the waste.

(b) Trial POHCs will be designated for performance of trial burns in accordance with the procedure specified in ss. NR 665.06 (1) (d) and (2) to (4) and 665.07 for obtaining plan of operation approval.

History: Cr. Register, February, 1991, No. 422, eff. 3−1−91.

NR 665.09 Operational requirements. No person may operate or maintain an incinerator except in conformity with the following minimum requirements and with the terms and conditions of any plan approval and license for the facility:

(1) The incinerator shall be so situated, equipped, operated and maintained as to minimize interference with other activities in the area.

(2) A sign shall be posted at the entrance to the facility, which indicates the name, license number and hours of operation of the facility.

(3) All hazardous waste shall be confined to the designated storage area.

(4) Hazardous waste, except for that in the process line, shall be stored only in storage tanks or containers in accordance with chs. NR 640 and 645.

(5) Before adding hazardous waste, the owner or operator shall bring the incinerator to steady state, normal conditions of operation, including steady state temperature and air flow, using auxiliary fuel or other means.

(6) Records shall be maintained for a minimum of 3 years, including records of the weights of material incinerated, the quantity of resulting residue, hours of plant operation and other pertinent information.

(7) Records shall be kept detailing all training required by employes who are involved with the operation of the incinerator. These records shall include:

(a) Required training; and

(b) Courses attended.

(8) Adequate equipment shall be provided in the storage and charging areas and elsewhere as needed to allow cleaning after each day of operation or as may be required in order to maintain the plant in a sanitary condition.

(9) The charging openings, as well as all equipment throughout the plant, shall be provided with adequate safety equipment as prescribed in ch. Ind 1.

Note: Chapter Ind 1 was repealed effective April 1, 1991. Federal OSHA standards should be reviewed.

(10) Upon completion of construction of a new incinerator and at least 10 days prior to initial operation, the department shall be notified to allow inspection of the incinerator both prior to and during any performance tests and initial operation.

(11) The owner or operator shall conduct, at a minimum, the following monitoring and inspections when incinerating hazardous waste:

(a) Combustion temperature, waste feed rate and the indicator of combustion gas velocity shall be monitored on a continuous basis.

(b) Carbon monoxide (CO) shall be monitored on a continuous basis at a point downstream of the combustion zone and prior to release to the atmosphere.

(c) Upon request by the department sampling and analysis of the waste and exhaust gas to verify the operating conditions required by sub. (13) are being met.

(d) The complete incinerator and associated equipment, such as pumps, valves, conveyors and pipes, shall be inspected at least daily for leaks, spills and fugitive emissions, and all emergency shutdown controls and system alarms shall be checked to assure proper operation.

(e) Equipment identified in subds. 1. to 10. shall be inspected on a weekly basis unless it is shown less frequent inspection shall be adequate and it can be shown that weekly inspections would unduly restrict or upset operations. At a minimum, this equipment shall be inspected monthly. Records documenting these inspections shall be maintained for:

1. The emergency waste feed cutoff system and associated alarms.
2. Waste flow monitors and records.
3. Auxiliary fuel flow monitors.
4. Combustion gas flow monitors.
5. Temperature monitors.
6. Flame sensors.
7. CO monitors and records.
8. Pressure differential indicators.
9. Pressure sensors.
10. Ammeters for measuring blowers current draw.

(f) The monitoring and inspection data shall be recorded and placed in an operating log as required by s. NR 630.31.

(g) The owner or operator of each incinerator with an interim license shall monitor existing instruments which relate to the combustion and emission control at least every 15 minutes. Appropriate corrections to maintain steady state combustion conditions shall be made immediately either automatically or by the operator.

Note: Instruments which relate to combustion and emission control would normally include those measuring waste feed, auxiliary fuel feed, air flow, incinerator temperature, scrubber flow, scrubber pH and relevant level controls.

Note: Owners and operators of interim license facilities also need to comply with par. (d) for monitoring and inspection. Complete interim license requirements are in s. NR 680.22.

(12) The incinerator shall be operated with a functioning device to automatically cut off waste feed to the incinerator when there is a deviation from or the limits are exceeded for flame combustion temperature, combustion gas velocity, excess CO level, increased waste feed rate or scrubber water pressure or any other operating conditions, as specified in the approved plan of operation.

(13) (a) An incinerator which burns a waste which contains a hazardous constituent listed in ch. NR 605 – Appendix IV, shall be designed, constructed and operated to maintain a destruction and removal efficiency of 99.99% for each principal organic hazardous constituent (POHC) designated under s. NR 665.08 in its

license for each waste feed. DRE is determined for each POHC from the following equation:

$$DRE = \frac{W_{in} - W_{out}}{W_{in}} \times 100$$

Where: DRE = destruction and removal efficiency

W_{in} = mass feed rate of the principal organic hazardous constituent (POHC) designated pursuant to s. NR 665.06 (2) or of waste going into the incinerator

W_{out} = mass emissions rate of the same POHC in the exhaust emission prior to waste exiting from release to the atmosphere.

(b) An incinerator burning hazardous waste F020, F021, F022, F023, F026 or F027 shall achieve a destruction and removal efficiency (DRE) of 99.9999% for each principal organic hazardous constituent (POHC) designated under s. NR 665.08 in its feasibility and plan of operation report. This performance shall be demonstrated on POHCs that are more difficult to incinerate than tetra–, penta–, and hexachlorodibenzo–p–dioxins and dibenzofurans. DRE is determined for each POHC from the equation in s. NR 665.08 (13) (a). In addition, the owner or operator of the incinerator shall notify the department of the intent to incinerate hazardous waste F020, F021, F022, F023, F026 or F027.

(c) An incinerator burning hazardous waste and producing stack emissions of more than 1.8 kilograms per hour (4 pounds per hour) of hydrogen chloride (HCl) shall control HCl emissions so that the rate of emission is no greater than the larger of either 1.8 kilograms per hour or 1% of the HCl in the stack gas prior to entering any pollution control equipment.

(d) An incinerator shall be operated in a manner ensuring that emissions of particulate matter corrected to 7% O_2 in the stack gas, do not exceed 180 milligrams per dry standard cubic meter, when corrected for the amount of oxygen in the stack gas according to the formula:

$$Pc = Pm \times \frac{14}{21 - y}$$

Where Pc is the corrected concentration of particulate matter, Pm is the measured concentration of particulate matter, and y is the measured concentration of oxygen in the stack gas, using the Orsat method for oxygen analysis of dry flue gas. This correction procedure is to be used by all hazardous waste incinerators except those operating under conditions of oxygen enrichment. For incinerators operating under conditions of oxygen enrichment, the department will select an appropriate correction procedure to be specified in the facility license.

(e) An incinerator shall be operated in a manner ensuring that emissions of particulate matter comply with all appropriate air management rules contained in chs. NR 400 to 499.

(14) An incinerator shall be operated in accordance with the operating requirements specified in the license and any plan approval. Each set of operating requirements shall be sufficient to comply with the performance standards of s. NR 665.09 (13) and shall specify the composition of waste to which the operating requirements apply. Throughout normal operation the owner or operator shall conduct sufficient waste analysis to verify that the waste feed to the incinerator is within the physical and chemical composition limits specified in the license and any plan approval.

(15) Based upon the results of the analysis and trial burns required by sub. (16), the department shall specify acceptable operating limits including the following conditions:

(a) Carbon monoxide (CO) level in the stack exhaust gas;

(b) Waste feed rate;

(c) Combustion temperature;

(d) An appropriate indicator of combustion gas velocity;

(e) Allowable variations in incinerator design or operating procedures; and

(f) Other operating requirements as are necessary to ensure compliance with this section. All sampling and analysis shall be done in accordance with 40 CFR Part 60 Appendix A, July 1, 1990, or "Sampling and Analysis Methods for Hazardous Waste Combustion, EPA–600/8–84–200".

Note: The publication containing the CFR reference may be obtained from:

The Superintendent of Documents
U.S. Government Printing Office
Washington, D.C. 20402

Publication EPA–600/8–84–002 is available from:

The National Technical Information Service
U.S. Department of Commerce
Springfield, VA 22161

These publications are available for inspection at the offices of the department, the secretary of state and the revisor of statutes.

(16) For any new wastes or mixtures of wastes not previously incinerated, the owner or operator shall fulfill the following requirements:

(a) The owner or operator shall supply the following information to the department for any hazardous waste or mixture of hazardous waste not previously burned;

1. The heat value and thermal stability of the waste in the form and composition in which it shall be burned;

2. Identification and quantification of any hazardous constituent listed in ch. NR 605 Appendix IV except for any constituent which would not reasonably be expected to be present. Any constituent excluded from the analysis shall be identified and the reason for its exclusion stated;

3. For interim license incinerators, the halogen content and sulfur content in the waste; and

4. For interim license incinerators, concentrations in the waste of lead and mercury, unless the owner or operator has written documentation data that show that the element is not present.

Note: Complete interim license requirements are in s. NR 680.22.

(b) Based on the information submitted in accordance with par. (a), the department shall specify the principal hazardous constituents for which the destruction and removal efficiency shall be calculated as required in sub. (13) (a).

(c) Either:

1. The owner or operator shall conduct a trial burn to demonstrate compliance with sub. (13) (a). Prior to the trial burn, the owner or operator shall submit for departmental approval a trial burn plan specifying how the following required information shall be obtained from the trial burn:

a. A quantitative analysis in the waste feed for any principal hazardous constituents designated by the department pursuant to par. (b).

b. A quantitative analysis of the exhaust gas for the concentration and mass emissions of the principal hazardous constituents, carbon monoxide and oxygen.

c. A computation of the destruction and removal efficiency for each principal hazardous constituent.

d. A measurement of average, maximum and minimum combustion temperature and the combustion gas velocity and waste feed rates.

e. A continuous measurement of carbon monoxide in the exhaust gas.

f. Any other information the department deems necessary to document compliance with sub. (13) (a), or

2. Submit for departmental approval the results of a trial burn conducted on a similar waste burned under conditions the owner or operator's incinerator can maintain. The trial burn shall meet the requirements of subd. 1.

(17) During start−up and shut−down of an incinerator, hazardous waste may not be fed into the incinerator unless the incinerator is operating within the conditions of operation, such as temperature and air feed rate, specified in the license or plan approval.

(18) Fugitive emissions from the combustion zone shall be controlled by:

(a) Keeping the combustion zone totally sealed against fugitive emissions;

(b) Maintaining a combustion zone pressure lower than atmospheric pressure; or

(c) An alternate means of control demonstrated to provide fugitive emissions control equivalent to maintenance of combustion zone pressure lower than atmospheric pressure.

(19) An incinerator shall cease operation when changes in waste feed, incinerator design, or operating conditions exceed limits designated in its license or plan approval.

(20) An incinerator shall be designed and operated to meet the applicable design and operational requirements specified in s. NR 640.06.

History: Cr. Register, February, 1991, No. 422, eff. 3−1−91; corrections in (13) (a) and (16) (a) 2., made under s. 13.93 (2m) (b) 7., Stats., Register, May, 1992, No. 437; am. (15) (f), Register, August, 1992, No. 440, eff. 9−1−92**; am. (16) (a) 1., Register, May, 1998, No. 509, eff. 6−1−98.**

NR 665.10 Closure. (1) Unless specifically exempt under s. NR 665.05 (2), the owner or operator of a hazardous waste incinerator shall meet the requirements specified in s. NR 685.05 and shall, at the completion of closure, remove from the facility all hazardous waste and hazardous waste residues, including, but not limited to, ash, scrubber waters and scrubber sludges.

(2) The owner or operator of a facility that treats hazardous waste shall, at completion of closure, remove all hazardous waste and hazardous waste residues, including, but not limited to, ash and sludges, from the treatment process or equipment, discharge control equipment and discharge confinement structures. The department may require monitoring of ground or surface waters, if the operation or design of the facility in relation to the hazard of wastes handled at the facility warrants monitoring.

Note: At closure, as throughout the operating period, unless the owner or operator can demonstrate, in accordance with s. NR 605.04 (3), that the residue removed from the incinerator is not a hazardous waste, the owner or operator becomes a generator of hazardous waste and shall manage it in accordance with applicable requirements of chs. NR 600 to 685.

History: Cr. Register, February, 1991, No. 422, eff. 3−1−91.